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LAW AND POLICY

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Laws and Policies Affecting Fertility: A Decade of Change

Editors' Summary. In the last decade more than 50 countries have strengthened laws or policies relating to fertility. Actions include:

- explicit statements on population policy emphasizing the relationship to national development,
- constitutional amendments,
- establishment of high-level units to formulate policies or coordinate programs,
- increased resources for family planning programs both in the public and in the private sector,
- elimination of restrictions on family planning information, services, and supplies,
- special benefits for family planning acceptors or couples with small families, and
- measures to improve the status of women, which indirectly affects childbearing patterns.

Policies, laws, and programs to influence fertility are now recognized as an integral part of efforts to promote social and economic development. This recognition was reaffirmed at the International Conference on Population in Mexico City in August 1984. At the conference 147 governments expressed, by consensus, their support for voluntary programs to help people control their fertility.

Governments cite at least four different reasons for increased attention to policies affecting fertility and family planning. These include desire to slow population growth in order to achieve national development objectives, concern for maternal and child health, support for the basic human right to determine family size, and equity in the provision of health services. While the strongest laws and policies to lower fertility have been instituted in Asia, countries in Latin America, Africa, and the Middle East also are making legal changes that can help promote lower fertility.

Population Policy Statements

In the decade between the World Population Conference in Bucharest in 1974 and the International Conference on Population in Mexico City in 1984, concern over problems of population growth and distribution has been expressed in many different ways. Approximately 40 developing countries have issued explicit population policy statements, some in separate declarations, some as part of long-term development plans. Eleven countries have approved language in their national constitutions referring to population or family planning. The constitutions of Ecuador, Mexico, Peru, and Yugoslavia guarantee the right of individuals to choose the number and spacing of children. The constitution of China makes family planning not only an individual right, but also an individual duty. In China, Portugal, Turkey, and Viet Nam, the constitutions require the state to provide family planning services. In China, Panama, the Philippines, and Thailand, the constitutions call for population policies that promote national economic and social welfare.

Policy-Making Organizations

Establishing a high-level unit to formulate, coordinate, or monitor population policies helps to insure that population policies are actually implemented. Population policy units at various levels now exist in at least 45 developing countries. These units, many of which were established since 1974, take different forms, including:

- small technical units providing information and analysis at a high level of government. These exist in many Asian countries such as Thailand and Sri Lanka;
- interministerial councils, representing various government agencies, that are created to formulate policy and promote programs. These are found in the Dominican Republic, Egypt, Kenya, Nigeria, Peru, Senegal, and Tunisia, among others.
- coordinating councils that actually oversee or administer the national family planning program including international assistance. Examples are Indonesia and Mexico.

Family Planning Services and Supplies

The most obvious expression of government concern over high fertility is support for family planning services. By

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1983 at least 127 governments worldwide, representing almost 93 percent of the world's population, provided some support for family planning, compared with 102 governments in 1974. This includes support for programs run by private voluntary agencies as well as those run by government ministries.

Law and policy changes, including ministerial regulations, have helped to make family planning information and services more accessible and to provide closer monitoring of contraceptive safety and efficacy. Some of the legal changes of the last decade include:

- Legalizing distribution of contraceptives, as in Cameroon, Lebanon, Mali, Mexico, Senegal, and Spain;
- Widening the categories of workers who are allowed to supply contraceptives, as in Barbados, Colombia, India, Jamaica, Sri Lanka, Thailand, and Turkey;
- Easing import requirements, as in Bangladesh, Egypt, Thailand, and Tunisia;
- Allowing increased public information and advertising of contraceptives, as in Brazil, France, Haiti, Jamaica, Mali, and Mexico;
- Providing services or education for young people, as in Costa Rica, Luxembourg, Mexico, the Philippines, and Sweden; and
- Approving and monitoring the safety and effectiveness of contraceptives more closely through drug regulatory agencies, as in the United States, the United Kingdom, and the Scandinavian countries.

Voluntary sterilization is the most widely used contraceptive method, and usage continues to grow. More and more governments are providing services, reducing restrictions on who can obtain procedures, and seeking to avoid abuses. Where voluntary sterilization is available through the private sector, it is also widely used. Many countries, including Ecuador, the Philippines, Turkey, and Spain, have recently made it clear through regulations, legislation, or presidential decrees, that voluntary sterilization is legal. Others, especially China, India, Sri Lanka, Singapore, and Bangladesh, emphasize voluntary sterilization in their national family planning programs and have no legal obstacles to this contraceptive method. To minimize any possibility of coercion, most countries require providers to inform potential clients about the permanence of sterilization and to make sure that the procedure is done with the voluntary and informed consent of the client.

Compensation and Benefits

Some governments reinforce fertility policies by compensating or rewarding those who comply and withholding benefits from or penalizing those who do not. In certain family planning programs men and women who decide on voluntary sterilization receive payments to compensate them for any extra costs such as transportation and lost wages. In some countries, couples who limit their families to a certain number receive long-term benefits, such as better housing, medical care, or priority for children's education. A few countries, notably China and Singapore, withhold or reduce some standard benefits to couples who exceed fertility norms. Any special incentives to influence fertility, whether pronatalist or antinatalist, whether given or withheld, raise ethical questions concerning the balance between individual freedom and national goals.

Status of Women

It has long been recognized that socioeconomic improvements will indirectly affect fertility. The extent to which this occurs may depend on how accessible these socioeconomic improvements are to women. Many countries have taken legal measures to improve the status of women and specifically to enhance women's opportunities for education and employment and women's ability within or outside marriage to hold property, enter into contracts, and carry on a business. The Mexico City conference highlighted the importance of women's roles by including strong and prominently placed recommendations in the final report of the conference.

Implementation

Legal and policy action can be an important step in achieving smaller families and slower population growth. Policy statements and legal action call attention to national goals and spell out specific ways to reach them. But laws on the books are not always implemented. To implement these laws more effectively, policy-makers need to assure that appropriate regulations are written and enforced. Policymakers need to encourage the private sector to continue innovative and outreach activities. Also, all citizens need to recognize the benefits that will come to them as individuals when they have smaller families and the rate of national population growth slows.

End of Editors' Summary.

BACKGROUND

Increasingly, governments around the world are taking action to influence fertility. Overall, at least four different reasons are now being cited to explain national support for these policies:

- demographic or socioeconomic concerns,
- health considerations,
- human rights arguments,
- reasons of justice and equity.

Demographic or socioeconomic concerns justify lower fertility as a means to improve living standards for all and to help meet national development goals. Between 1950 and 1980 about half of the countries in Asia, Africa, and Latin America saw their population size more than double (606). By the year 2000 almost all of the countries in Asia, Africa, and Latin America will contain at least three times as many people as they did in 1950 (606), and world population will have grown from 2.5 billion to more than 6 billion. By the year 2000 more than 60 percent of the world's population will live in cities (604). This rapid population growth is seen as a major contributor to or cause of high unemployment, crowded cities, pollution, inadequate housing, poor sanitation, continued illiteracy, and insufficient public services (331, 656). As a result, governments, international agencies, private organizations, communities, and individuals are giving increasing attention to the need for laws and policies that can help slow this growth. According to the 1983 United Nations Monitoring Report on World Population Trends and Policies, 48 percent of developing-country governments consider current population growth rates too high (613). These countries account for 60 percent of the world's population. Some 37 percent of developing-country governments, accounting for 59 percent of the world's population, are taking action expressly to lower fertility (613).

Health considerations focus on the benefits of child-spacing and smaller families for the health of mothers and children. Currently an estimated one-half of all births in developing countries pose high risk to the health of both mother and child. These are births to women too old or too young, after too many previous births, or too soon after another birth. If the use of family planning increased so that all births were to women ages 18 to 35, no woman had more than four children, and births were at least two years apart, an estimated 5.6 million infant deaths and 200,000 maternal deaths would be avoided (727). Regardless of the size or density of population, family planning can substantially reduce high rates of sickness and death among women and children.

Human rights arguments emphasize the basic right of all couples and individuals to decide freely and responsibly

The International Conference on Population, meeting in Mexico City in August 1984, declared by consensus that "Governments should, as a matter of urgency, make universally available information, education and the means to assist couples and individuals to achieve their desired number of children." Among major speakers were (left to right): Miguel de la Madrid Hurtado, President of Mexico; Manuel Bartlett Diaz, Secretary of the Interior and President of the National Population Council of Mexico, who served as President of the conference; Javier Pérez de Cuéllar, Secretary-General of the United Nations; Rafael M. Salas, Executive Director of the United Nations Fund for Population Activities and Secretary-General of the conference; and Queen Nur Al-Hussein of Jordan. (Courtesy of UNFPA)

Governments Urged to Set and Coordinate Population Policies

Many recommendations from the International Conference on Population in Mexico City in 1984 emphasized the links between socioeconomic development and population policy and the need for effective coordination and implementation:

Recommendation 1

Considering that social and economic development is a central factor in the solution of population and interrelated problems and that population factors are very important in development plans and strategies and have a major impact on the attainment of development objectives, national development policies, plans and programmes, as well as international development strategies, should be formulated on the basis of an integrated approach that takes into account the interrelationships between population, resources, environment and development. In this context, national and international efforts should give priority to action programmes integrating population and development.

Recommendation 2

National and international efforts should give high priority to the following development goals included in the International Development Strategy for the Third United Nations Development Decade: the eradication of mass hunger and the achievement of adequate health and nutrition levels, the eradication of mass illiteracy, the improvement of the status of women, the elimination of mass unemployment and underemployment and the elimination of inequality in international economic relations. To achieve these goals, it is further recommended that Governments should take population trends fully into account when formulating their development plans and programmes.

Recommendation 3

In order to promote the broadly based socio-economic development that is essential to achieving an adequate quality of life as well as national population objectives and to respond effectively to the requirements posed by demographic trends, all countries are urged to cooperate in efforts to achieve the above objectives and to accelerate development, particularly in developing countries, *inter alia,* through policies to lower barriers to trade, to increase multilateral and bilateral development assistance, to improve the quality and effectiveness of this assistance, to increase real income earnings from the export of commodities, to solve the problems arising from the debt burden in a significant number of developing countries, to increase the volume and improve the terms of international lending, and to encourage various sources of investment and, wherever appropriate, entrepreneurial initiatives. To respond to the needs of populations for employment, food self-sufficiency, and improvements in the quality of life and to increase self-reliance, productive investment should be increased, appropriate industries should be encouraged and substantial investments should be fostered in rural and agricultural development.

Recommendation 4

In countries in which there are imbalances between trends in population growth and resources and environmental requirements, Governments are urged, in the context of overall development policies, to adopt and implement specific policies, including population policies, that will contribute to redressing such imbalances and promote improved methods of identifying, extracting, renewing, utilizing and conserving natural resources. Efforts should be made to accelerate the transition from traditional to new and renewable sources of energy while at the same time maintaining the integrity of the environment. Governments should also implement appropriate policy measures to avoid the further destruction of the ecological equilibria and take measures to restore them.

Recommendation 11

Governments are urged to adopt population policies and social and economic development policies that are mutually reinforcing. Such policies should be formulated with particular attention to the individual, the family and community levels, as well as to other factors at the micro-level and macro-level. Special emphasis needs to be given to linkages between population trends, labour supply and demand, the problems of unemployment and the creation of productive employment. Governments are urged to share their experience in integrating population policies into other social and economic development policies.

Recommendation 12

Governments are encouraged to provide adequate resources and, where appropriate, to adopt innovative measures for the implementation of population policy. To be effective and successful, population programmes and development activities should be responsive to local values and needs, and those directly affected should be involved in the decision-making process at all levels. Moreover, in these activities, the full participation of the community and concerned non-governmental organizations, in particular women's organizations, should be encouraged.

Recommendation 77

Governments are urged to attach high priority to the attainment of self-reliance in the management of their population programmes. To this end, Governments are invited:

(a) To establish monitoring and evaluation systems and procedures as an important managerial tool for policy-making and programming;

(b) To strengthen the administrative and managerial capability needed for the effective implementation of population programmes;

(c) To ensure that international assistance is provided under arrangements and on conditions that are adapted to the administrative resources of the recipient country, and that such assistance is co-ordinated at the national level in a manner that will facilitate effective and efficient programmes;

(d) To involve communities more actively in the planning and implementation of population programmes.

Recommendation 78

Governments are encouraged to continue to utilize technical co-operation among developing countries; subregional, regional and interregional co-operation should be encouraged.

the number and spacing of their children. This right may have been first enunciated by an international meeting when the first constitution of the International Planned Parenthood Federation (IPPF) was ratified in 1953 (435). The United Nations General Assembly unanimously endorsed this right in 1966. A number of international conventions since then, including the 1968 International Conference on Human Rights in Teheran (710) and the 1974 World Population Conference in Bucharest (641), have added their endorsements (713). Most recently, the International Conference on Population in Mexico City urged governments "to ensure that all couples and individuals have the basic right to decide freely and responsibly the number and spacing of their children and have the information, education and means to do so. . . ." (712) (see box, p. E-118).

Reasons of justice and equity argue for extending to all groups the services and benefits that are already available to some. This argument was a major reason in the US for establishing national assistance for family planning. In July 1969 President Richard Nixon stated in a message to the Congress:

> It is my view that no American woman should be denied access to family planning assistance because of her economic condition. I believe, therefore, that we should establish as a national goal the provision of adequate family planning services within the next five years to all those who want them but cannot afford them. (693)

On one or more of these four bases, family planning services are made available even in countries, such as those of Eastern Europe, that have national policies to increase population size and, in fact, provide economic incentives to promote larger families (382). Worldwide, 127 governments support access to modern means of fertility regulation. These countries account for over 93 percent of the world's population (see p. E-117).

This issue of **Population Reports** focuses on laws and policies influencing the reduction of fertility that have been instituted over the past decade. It does not cover policies concerning other aspects of population, such as internal and international migration (see **Population Reports,** *Migration, Population Growth, and Development,* M-7, September-October 1983), mortality reduction (675), or aging (536, 672). Nor does it examine policies to stimulate population growth (379, 382) or laws and policies relating to pregnancy termination (369, 592).

From Bucharest to Mexico City

A broad consensus of support for policies, laws, and programs to deal with fertility-related problems was evident at the International Conference on Population in Mexico City in August 1984. In contrast to the earlier World Population Conference in Bucharest in 1974, the Mexico City conference had little difficulty in agreeing on the seriousness of population issues and the need for realistic policies to deal with them. Whereas much of the debate in 1974 had centered around ideological questions of demographic theory, the discussions in 1984 focused on developing practical recommendations based on a decade of shared experience with operating programs. In fact, the deepest differences of opinion at Mexico City were not on population issues at all but on political issues—such as disarmament and settlements in occupied territory—that were peripheral to the purposes and basic consensus of the conference.

In some African countries, where the health benefits of child-spacing prompt official support for family planning, maternal and child health services include family planning. (WHO)

The recommendations of the Mexico City conference, adopted by consensus, strongly reaffirmed the need for national laws and policies in three crucial areas covered in this report—integrated population and development policy, expanded family planning and health-related programs, and improvements in the status of women. In each area, the recommendations reflected not only a decade of changes in law and policy, but also an increasing awareness of the need for new laws and policies.

Concerning the link between population and development, there was no argument over which was more important—socioeconomic development or family planning programs. Policies encouraging both were considered necessary. It was agreed without dispute that "national and international efforts should give priority to action programmes integrating population and development" (712).

Concerning the role of family planning programs, the recommendations noted that "governments should, as a matter of urgency, make universally available information, education and the means to assist couples and individuals to achieve their desired number of children" (712). Specific service delivery, information, research, and management needs of family planning programs, and particularly the need for broad local and community participation, were emphasized.

Concerning the status of women, the Mexico City conference significantly augmented both the prominence and the force of the draft recommendations. Acknowledging that broadening the role and improving the status of women "remain important goals that should be pursued as ends in themselves," the participating governments created an important new section on the status of women. The new section was placed immediately after the opening section on socioeconomic development and population (712).

In the decade between Bucharest in 1974 and Mexico City in 1984, at least 50 developing-country governments had already moved in the directions recommended at both conferences by:

- formulating explicit policies to lower fertility,
- embodying population policies in constitutions, development plans, and legislation,
- establishing national population commissions or other policy coordinating units,
- providing the funds necessary to carry out programs,
- modifying existing laws to strengthen family planning information and services, and
- improving the legal status of women by removing barriers to education, gainful employment, and greater participation in community and national life.

POPULATION POLICY STATEMENTS

Official statements of population policy announce the long-range intentions and set the long-term demographic goals of governments. These statements may be made in various ways, ranging from an amendment to the national constitution or inclusion in national economic development plans to separate population policy analyses. The relationship between such policy statements and government action varies, however. In some countries, such as Mexico, an explicit policy statement was followed by a broad range of programs and legal changes implementing the policy. In others, such as Ghana, where a policy statement was issued in 1969, little action followed. In still other countries, especially in Latin America, governments provide, or permit private organizations to provide, family planning services, but they do not announce any formal policy.

Constitutional Statements

The strongest type of legal or policy action that can be taken is theoretically a provision in the national constitution. In all countries the national constitution is officially the supreme law of the land. A right or duty spelled out in a constitution has a higher status and a longer life than one found in ordinary legislation or in short-term economic plans. Constitutional provisions assuring the right to health, giving couples the right to have the number of children they want, or requiring the government to provide family planning services give such rights special status. They also can be important as an expression of government policy even if not immediately implemented. Such provisions justify not only government action but also expanded activity by the private sector.

Eleven countries have constitutional provisions relating to family planning, population policy, or fertility regulation. All these provisions have been instituted since 1974. In Ecuador, Mexico, Peru, and Yugoslavia, either the constitutions guarantee the right of individuals to choose the number and spacing of children that they desire, or the constitutions specifically encourage responsible parenthood (55, 131, 151, 233). In China, Portugal, Turkey, and Viet Nam, the constitutions require the state to provide family planning services (33, 166, 219, 510). In China a 1982 constitutional provision also makes it the *duty* of husband and wife to *practice* family planning (34).

Four constitutions—those of China, Panama, the Philippines, and Thailand—mention population policy. The 1982 Chinese constitutional amendment not only affirms the right and duty of individuals to practice family planning, but it also declares that "the State promotes family planning so that population growth may fit plans for economic and social development" (33). The 1973 Philippine constitution makes it a government responsibility to achieve and maintain population levels most conducive to the national welfare (157). The 1983 Panama constitution and the 1978 Thai constitution require the state to formulate a population policy responsive to national economic and social needs (147, 206).

Many national constitutions establish a right to health care, as, for example, in Nigeria (142), Bangladesh (15), and Egypt (59). Although these do not mention family planning specifically, they may imply a right to family planning services, at least for older or higher-parity women, whose health is most endangered by pregnancy and childbearing.

Population and Development Policy Statements

Countries in Asia have taken the lead in issuing explicit population policy statements. The Indian government issued the first national population policy in 1952. Many other Asian governments followed suit in the 1950s and 1960s. Currently, at least 19 Asian and Pacific countries have made official population policy statements. The most recent development plans of 16 Asian and Pacific countries—Bangladesh, China, Fiji, India, Indonesia, Kiribati, Malaysia, Nepal, Pakistan, the Philippines, Samoa, South Korea, Sri Lanka, Thailand, Tonga, and Viet Nam—express concerns about population growth and propose policies to reduce fertility (see Table 1). A majority of these nations also have separate population policy statements. In addition, Papua New Guinea, Singapore, and Taiwan have separate population policies not directly included in development plans (326, 613, 621). With the exceptions of Bhutan, Burma, Kampuchea, Laos, and Japan, all governments in the region have official policies favorable to family planning and fund national family planning programs (613) (see p. E-119).

Compared with Asia and the Pacific, the countries of Latin America and the Caribbean, sub-Saharan Africa, and the Middle East have been slower to issue separate population policies or to discuss population in development plans. In Latin America four countries—the Dominican Republic, Mexico, Peru, and El Salvador—have issued population policy statements in the last decade favoring fertility regulation. By contrast, one country, Argentina, has adopted a policy to increase the size of its population (330). Some Latin American population policies have been actively implemented; others, not. In Mexico passage of the 1974 Population Law produced important results, including creation of a National Population Council that set demographic goals through the year 2000; establishment of a nationwide program of family planning services under a national Coordinating Council; inclusion of population education and sex education in school books; repeal of the law prohibiting distribution of contraceptives; and a government-sponsored publicity campaign to encourage smaller families (470, 481). By contrast, in Peru the Guidelines for Population Policy, issued in 1976, have not yet been fully implemented (697). All countries in the region include some family planning in health services except Argentina, Belize, Bolivia, Guyana, and Surinam (613) (see p. E-119).

In sub-Saharan Africa, despite some of the highest birthrates and population growth rates in the world, there has

Table 1. Policy Statements in Support of Fertility Reduction or Family Planning, Selected Countries, 1980–1983

Region & Country (Ref. No.)	Source	Policy Rationale/Goal	Activities Emphasized
AFRICA			
Botswana (613, 800)	Fifth 5-Year Plan, 1980–85; Statement to 2nd African Population Conference, 1984	Policy motivated by concerns about effect of rapid population growth on dependency ratio, unemployment, and development of infrastructure and services. An important aim of health policy is to make family planning supplies and advice available to all. Goal is increase in contraceptive use to 15% by 1985.	Family life education program for youth; family planning integrated with MCH in basic health services.
Burundi (348)	Family Planning and Demographic Control Policy, 1983	Rapid population growth endangers socioeconomic development and strains national resources. Goal is reduction in growth rate.	Create National Family Planning Service to be integrated with MCH; integrate family planning into other sectors; expand IEC efforts, especially for adolescents.
Gambia (703)	Second Development Plan, 1982–86; reply to 5th UN Population Inquiry	Difficulties occur in providing rapidly growing population with goods and services; deterioration of environment. Goal is concurrent reduction in fertility and death rates.	Integrate family planning with MCH services; government support for voluntary activities; family life education in schools; education program for community leaders.
Ghana (616, 805)	5-Year Development Plan, 1981–1985; Statement to 2nd African Population Conference, 1984	Population policy essential to achieving development objectives, preventing poverty. Goal is to reduce TFR to 4 children per woman by year 2000; reduce rate of increase from 3.3% to 2.0% by year 2000.	National family planning program integrating health and population counseling; limit maternity benefits and child allowances for civil servants to first three births; increase education and employment opportunities for women.
Guinea-Bissau (806)	Statement to 2nd African Population Conference, 1984	Goal is at least 2-year spacing of births as part of overall program to reduce mortality and morbidity.	MCH and child-spacing program.
Kenya (310, 807)	Development Plan, 1979–83; Statement to 2nd African Population Conference, 1984	Rapid population growth magnifies problems of unemployment, housing, and medical care, lowers standard of living. Goal is to reduce population growth rate from 3.8% to 3.3% by 1988.	Information and education programs for parents; expand family planning/MCH services, especially to rural areas; train nurses and family planning field officers; health education nationwide; motivate men to practice family planning.
Lesotho (666, 708)	Third 5-Year Development Plan, 1980–85; Statement to 2nd African Population Conference, 1984	To improve family well-being, bring population growth and economic growth into balance.	Health education and provision of family planning services; integrate family planning with MCH; integrate family life and population education into all education programs.
Mauritius (613, 619, 722)	5-Year Plan for Social and Economic Development, 1975–80; reply to Fifth UN Population Inquiry	To reduce CBR to 22.5 by mid-1980s, family planning services should cover 32 percent of women of reproductive ages by 1982 vs. 28 percent in 1978.	Family planning integrated with MCH; raise education levels; increase employment; improve income distribution.
Nigeria (321)	Fourth National Development Plan, 1981–85	To bring the overall growth rate of the population down to a level that will not impose excessive burdens on the economy, the fertility rate must decline. Population trends must be more closely monitored if sustained economic development is to be achieved.	Strengthen national population commission; encourage family planning services and education.
Rwanda (556, 613)	Third 5-Year Plan, 1982–86	States need to slow population growth while emphasizing that plan is not "Malthusian." Goal is 3.5% population growth rate by 1986, down from 3.9% in 1982. Priority given to reducing fertility of women age 15-24 and 40+.	Integrated family planning/MCH services; train rural health workers.
Senegal (175, 306, 815)	Sixth Quadrennial Plan of Economic and Social Development, 1982–86; Law No. 80–49, 1980; statement 2nd African Population Conference, 1984	Sixth Plan notes that population growth affects economic and social life. Preamble to law states that "family planning has been recognized as an element in the harmonious development of the individual and society." Goal is to promote birth spacing.	Creation of National Commission on Population (CONAPOP); support to private family planning association.
Uganda (597, 820)	10-Year Reconstruction and Development Plan, 1981–90; Statement to 2nd African Population Conference, 1984	Rapid population growth adversely affects savings, capital accumulation, and employment. Maternal and infant mortality are high partly due to closely spaced births. Goal is to lower population growth rate from 3% to 2.6% by 1995.	Strengthen family planning services and outreach and integrate with national health system; population education at all levels of formal and informal education; encourage education for women.

Table 1 Continued.

Region & Country (Ref. No.)	Source	Policy Rationale/Goal	Activities Emphasized
Zambia (821)	Third National Development Plan, 1979–83; Statement to 2nd African Population Conference, 1984	Demographic situation presents serious constraints to socioeconomic development, particularly the growth of employment.	Antenatal and postnatal care, family planning, and child care are "the main pillars" of MCH program; population education needed.
ASIA & PACIFIC			
Bangladesh (333, 686)	Second 5-Year Plan, 1980–85; reply to Fifth UN Population Inquiry	Emphasizes need for immediate fertility decline. Goal is to reduce TFR from 5.8 to 4.1 by 1985 and CBR from 43.2 in 1980 to 32.5 by 1985; increase contraceptive use from 14% of eligible couples in 1980 to 27% by 1985.	Integrated health and family planning services; community participation; voluntary sterilization; higher marriage age, improved women's status; incentives for small families.
China (543)	Sixth 5-Year Plan, 1981–85; national and provincial regulations	Current population growth rate is a threat to well-being of nation. Goal is to keep total population below 1.06 billion by 1985 and 1.2 billion by 2000; rate of natural increase to be kept to 1.3%. Each urban couple may have only one child. Each rural couple urged to have only one child; birth of second child must be approved. No third births.	Promote the one-child family through strong incentives and disincentives and wide availability of family planning services offered by nonphysicians. Family planning should be extended to minorities.
Fiji (566, 613, 701)	Eighth Development Plan, 1981–85; reply to Fifth UN Population Inquiry	Proposed goal is lowering CBR to 20 by 1985. Family planning goal is raising contraceptive use to 35% by 1985.	Family planning implemented through Primary Health Care Program.
India (425)	Sixth 5-Year Plan, 1978–83	Long-range goal of NRR of 1.0 by 1996. Also, specific annual goals set.	Interministerial participation; education of women; incentives; strengthened service delivery.
Indonesia (613)	Third 5-Year Development Plan, Repelita III, 1979–84	Main long-term goals are to reduce fertility and death rates and increase life expectancy. National Family Planning Coordinating Board plans to reduce CBR from current 36 to 23 by 1990.	Expand family planning services to all areas; foster migration to outer islands. Emphasizes integrated programs, particularly village development programs.
Kiribati (613, 717)	Reply to Fifth UN Population Inquiry	Goal is to lower TFR from 4.5 to 2.0 by the year 2000 and later reach zero population growth. Family planning goal is 85% of women in childbearing ages using contraception by 1986.	Family planning service and IEC activities concentrated on younger people.
Malaysia (613, 721)	Fourth Malaysian Development Plan, 1981–85; reply to Fifth UN Population Inquiry	Goal is CBR of 20 and population growth rate of 1.5% by 1985. Family planning goal is 732,000 new acceptors by 1985. (In 1983, however, the Prime Minister and other leaders advocated faster population growth (683). Family planning activities have not been curtailed.)	In family planning programs, give special attention to high-risk groups—high-parity women and those at the beginning or end of their reproductive cycles.
Nepal (504, 613, 725)	Sixth 5-Year Plan, 1980–85; reply to Fifth UN Population Inquiry	Cites effect of population growth on land and resources. Goal is to reduce TFR from 6.3 to 5.8 over the plan period. A "contraceptive mix" has been specified in order to attain replacement level fertility by the year 2000.	Improve infrastructure; regulate migration; offer family planning as part of government health services.
Pakistan (522)	Population Welfare Planning Plan, 1980–83 (part of Fifth 5-Year Plan, 1978–83)	Need to balance and coordinate economic and social development. Goal was to reduce CBR from 41.0 in 1980 to 37.5 by 1983.	Establish additional population welfare centers throughout the country and train reproductive health care personnel.
Philippines (613, 731)	POPCOM Medium Term Plan, 1981–85	Goal is to slow rate of increase so that population reaches no more than 53 million by 1985. Long-term goal is NRR of 1.0 by 2000.	Improve contraceptive prevalence and effectiveness by increasing outlets for family planning information and services; promote later marriage; promote small family norm.
	Development Plan, 1983–87	Goals are to reduce CBR from 31.2 in 1983 to 27.9 in 1987, reduce proportion of married women under age 20 from 50% in 1978 to 42% in 1985, reduce desired number of children to 3 by 1985.	
Korea, Republic of (465, 537)	Fifth 5-Year Plan, 1982–86	Goal is replacement-level fertility by 1988. Family planning goal is 67% using contraception by 1986.	Incentives and disincentives to encourage smaller families; improve status of women; eliminate import tariffs on contraceptives.
Samoa (740, 741)	Fourth 5-Year Development Plan, 1980–84	To improve the overall quality of life, goal is to increase participation in efforts to plan family growth.	Interministerial Committee on Population formed; support for family planning services.

Table 1 Continued.

Region & Country (Ref. No.)	Source	Policy Rationale/Goal	Activities Emphasized
Thailand (591, 613)	Fifth 5-Year Plan, 1982–86	Need to reduce population growth to rate compatible with availability of resources. Goal is to reduce population growth rate to about 1.5% by 1986.	Incentives for 2-child family; higher age at marriage; lower tax on unmarried people; permit nurses to insert IUDs.
Viet Nam (322, 450)	Third 5-Year Development Plan, 1981–85	Goal is to reduce population growth rate to 1.5% by 1985 and 1.0 by 2000 through national family planning program.	Produce more contraceptives; more effective propaganda; population education in schools; incentives for those with one or two children.
LATIN AMERICA & CARIBBEAN			
Barbados (609)	Development Plan	To attain better socioeconomic conditions, goal is to lower population growth rate.	Support for private family planning associations; family planning services through government clinics.
Brazil (613, 689)	Reply to Fifth UN Population Inquiry	Supports family planning activities for MCH reasons only.	Support for private family planning associations.
Dominican Republic (609, 613, 698)	Presidential Decree 2091, 1968; reply to Fifth UN Population Inquiry	Goal is to increase number of new contraceptive users by 7% per year from 1983 to 1986.	Family planning program integrated with MCH; direct government support for all contraceptive methods; community education program; activities to upgrade status of women.
Costa Rica (696)	National Development Plan, 1979–82	Goal is to guide population growth and distribution in a way that contributes to economic development and quality of life.	National Population Policy Council formed to formulate policy. Develop sex education programs to promote responsible parenthood.
Guatemala (705)	National Development Plan, 1984–85	Goal is to coordinate population dynamics with economic development; to reduce differences among social groups in fertility and mortality rates.	Influence fertility by increasing education and income.
Haiti (613, 706)	Reply to Fifth UN Population Inquiry	Goal is to reduce CBR to 20 and family size to 2-3 children by 2000.	Family planning program; more support for voluntary sterilization.
Jamaica (613, 716)	Statement of National Population Policy, 1982; reply to Fifth UN Population Inquiry	To improve health status and achieve favorable conditions for economic and social development, ensure continuing national fertility decline. Goal is replacement-level fertility by the year 2000.	Comprehensive family planning program, emphasizing services to adolescents and rural areas; family life education program; parent education training program.
Mexico (490, 613, 724)	General Population Law of 1974; CONAPO National Family Planning Plan, 1977–82; reply to Fifth UN Population Inquiry	Lower population growth rate and population redistribution are essential to development objectives. Goal is to lower annual population growth rate to 1.8% by 1988, 1.3% by 1994; to lower CBR from 33 in 1982 to 25 by 1988.	Comprehensive national family planning program; use of mass media for motivation; use of paramedics and community workers; education programs.
Peru (155, 613, 726)	Guidelines for Population Policy for Peru, 1976; reply to Fifth UN Population Inquiry	Attain population growth rate compatible with individuals' free decisions on family size. Goal is to increase use of family planning services to 10% of eligible couples.	National family planning program; raise education level; incorporate women into labor force.
El Salvador (609)	Population Policy of 1974; Development Plan, 1978–82	To attain better utilization of human and natural resources, goal is to reduce population growth rate and increase participation of women in development.	Population education in schools and for adults; family planning services supplied by Ministry of Public Health and Social Assistance.
MIDDLE EAST & NORTH AFRICA			
Egypt (395, 613, 634, 699)	1978–82 Plan; reply to Fifth UN Population Inquiry	Goals are to reduce population increase and rural/urban migration, improve distribution. Reduce CBR from 40 to 20 by 2000; reduce TFR from 5.5 to 3.0 by 2000. Family planning goal is to reach contraceptive use level of 60% by 2000.	Family planning services integrated with health and social programs; encourage voluntary organization providers; improve contraceptive availability; population education in schools and for the public.
Tunisia (595, 613, 733)	Sixth 5-Year Plan, 1982–86; reply to Fifth UN Population Inquiry	To protect health of women and children, goal is lowering CBR from 35.4 to 30 by 1986. Family planning goal is to raise contraceptive use level from 27% in 1980 to 40% in 1986.	Promote information about family planning; strengthen training for medical, paramedic, and management personnel; intensify research activities; more effective provision of family planning services to unserved rural populations.
Turkey (221, 613, 734)	Population Planning Law 2927, 1983; Fifth 5-Year Plan; reply to Fifth UN Population Inquiry	Goal is to reduce TFR from 4.33 in 1978 to 2.89 by 1995–2000.	Family planning services; ease sterilization laws; education and information programs.

CBR = Crude birthrate (births per 1,000 population)
IEC = Information, education, and communication
TFR = Total fertility rate (average number of births expected per woman)
MCH = Maternal and child health
NRR = Net reproduction rate (average number of daughters expected to survive through childbearing ages per woman)

until recently been little interest in reducing fertility. This lack of interest stems from a number of factors including low population density, high infant and child mortality rates, religious and tribal rivalries, and, recently, economic crises that may have diverted attention from longer-term issues such as population growth (397, 586). Generally, population growth is not considered an impediment to development. Some 13 countries, however, of a total of 45 developing countries in sub-Saharan Africa, consider current fertility rates too high and think that government action to encourage lower fertility is appropriate (613). In other countries family planning services, where available, are offered for health reasons, not to reduce population growth (613).

In 11 sub-Saharan African countries—Botswana, Gambia, Ghana, Kenya, Lesotho, Mauritius, Nigeria, Rwanda, Senegal, Uganda, and Zambia—development plans discuss population growth or family planning (see Table 1). In Burundi the central committee of the ruling UPRONA party recently issued a strongly worded statement on population (348). Cameroon, Liberia, Rwanda, Senegal, Sierra Leone, and Burkina Faso (formerly Upper Volta) have shown some interest in developing separate population policies (556, 568, 608). As noted, Ghana issued a separate population policy statement in 1969 (407), but it has not been implemented.

Three countries in the Middle East—Egypt, Tunisia, and Turkey—have explicit population policies. All consider population in development plans and have separate population policy statements as well. The governments of Algeria and Morocco have not issued explicit population policies but offer some family planning services in their national health programs. In late 1983 the President of Algeria called for establishment of a national population policy (679). Most of the oil-producing states in the region, including Iraq, Kuwait, Libya, Saudi Arabia, Qatar, and the United Arab Emirates, do not support family planning (613) and, in fact, encourage higher fertility among their own citizens (607). Israel does not have an official population policy. Although various administrations have tried to encourage higher fertility by offering incentives to childbearing, the government supports family planning services (406, 613).

What do development plans and separate policy statements say about population growth and fertility? Although policies differ according to social, political, and cultural circumstances, many contain common elements. They

- explain the rationale for the policy,
- formulate policy objectives,
- set quantitative goals,
- support organized family planning activities, and
- recommend other, indirect policies to reduce fertility.

Rationale for Policies on Fertility

In each country, the rationale for a specific national policy statement depends largely on how population growth is thought to affect the quality of life in that country. In Asia, governments view high fertility levels and resulting rapid population growth as a serious threat to the well-being of the entire country (366, 613). In Nepal the Sixth Development Plan (1980–85) emphasizes the relationship between population and pressures on land, food supply, and employment (504, 522, 624). In Bangladesh the Minister of Planning introduced the Second 5-Year Plan (1980–85) by noting that population growth "has frustrated the development efforts in Bangladesh" (333). A number of other Asian governments have recognized that increases in productivity are nullified by rapid population growth requiring increases in funding for schools, jobs, and social services (331, 431).

In Latin America policies in support of family planning were originally justified in countries such as Chile and Costa Rica as protecting the health of mothers and children in large families (354, 437, 609). More recently, concern over crowded cities, high unemployment, pollution, inadequate housing, poor sanitation, continued illiteracy, rampant inflation, and limited public services is making individuals and governments in Latin America, as elsewhere, more conscious of the drawbacks of rapid population growth and more receptive to the need for national policies (426, 656). The Dominican Republic, Grenada, Haiti, Jamaica, Mexico, El Salvador, and Peru have all expressed concern about rapid population growth as an obstacle to their overall social and economic development (609).

In Africa, 9 of the 11 sub-Saharan countries that discuss population growth in their development plans do so because they are concerned that high growth rates impede development or adversely affect socioeconomic well-being.

In North Africa, Tunisia's Sixth Development Plan (1982–86) emphasizes the importance of planned births to maternal and child health (595). Both Tunisia and Egypt, however, have officially expressed concern with the adverse effects of recent population growth on development (608, 612). Both countries have long-standing policies encouraging child spacing and smaller families.

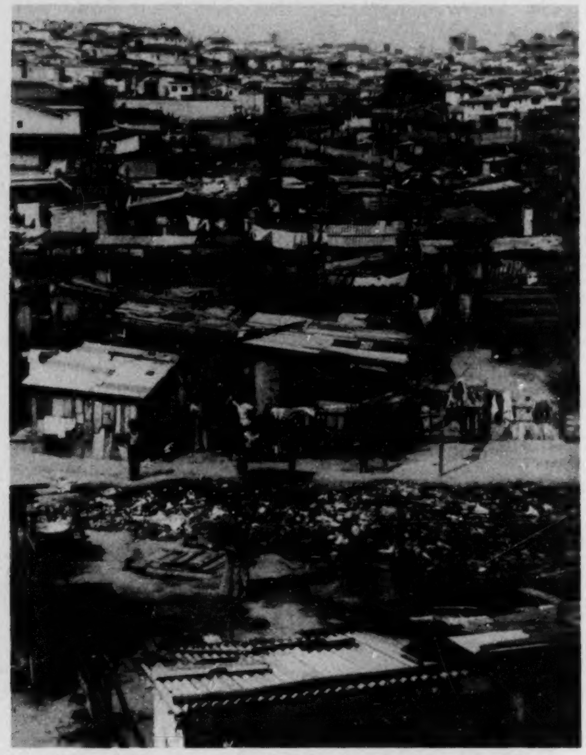
In developed countries, where population growth rates are low, governments have established family planning and other population policies in order to improve maternal and child health and to insure individuals' rights of access to services and of personal choice (489, 602, 610, 649). Even countries in Eastern Europe that have pronatalist policies provide family planning services as a right of individuals (382).

Policy Objectives

Overall or general objectives often are improved social welfare, a better balance between population and resources, or improvements in the quality of life. Many policies proceed from such general objectives to more specific goals or objectives. These may include lower morbidity and mortality rates, improved health status, creation of employment opportunities, increased participation of women in the development process, more balanced regional development, access to better family planning services, and reductions in the incidence of unwanted pregnancies.

Quantitative Goals

The development plans and policy statements of at least 25 countries have established quantitative population or family planning goals (613). These are especially common in Asia. For example, according to its current development plan, Bangladesh hopes to reduce the total fertility rate from 5.8 to 4.1 by 1985 (333), and the Minister of Planning has called for replacement-level fertility by the year 2000 (742). India's development plan calls for a net reproduction



Rapid population growth leads to inadequate housing, pollution, and poor sanitation. To help solve these problems, many countries have adopted population policies and support family planning to lower fertility and slow population growth. (IADB)

rate (number of female children per woman) of 1.0 by 1996 (425, 492). The population policy of the Philippines is to reduce the current 2.4 percent rate of population growth to 2.0 percent by 1987 (658). The goal of China is to keep population size below 1.06 billion by 1985 and below 1.2 billion by 2000 (543). As a group, Asian parliamentarians, meeting in Beijing in 1982, set a goal of one percent annual population growth for the region, to be achieved by the year 2000 (331). This goal was reaffirmed by the 1984 parliamentarians' conference in New Delhi (684).

A few countries in other regions, including Tunisia, Mauritius, Mexico, and Rwanda, also have quantitative population goals. Tunisia hopes to lower the crude birthrate from 35.4 in 1982 to 30 by 1986 (595). Mauritius seeks a net reproduction rate of one by 1987 (742). Mexico hopes to lower the crude birthrate from 33.3 in 1982 to 25 by 1988 (613). Rwanda hopes to lower the population growth rate from 3.9 percent to 3.6 percent by 1986 (556).

Support for Family Planning

Most development plans and population policies emphasize family planning programs as the primary government intervention to lower fertility (see p. E-117). At least 17 countries have specific family planning goals in their development plans or other policy statements. Bangladesh, Botswana, and Tunisia, for example, have set contraceptive prevalence goals (333, 595, 613). Malaysia and Mexico have set goals for the number of acceptors to be reached by family planning programs (613). Papua New Guinea and Indonesia have set goals for the number of clinics and distribution points to be established (613).

Family planning has long been part of health services, but a recent trend in Asian population policies is to integrate family planning with other community development activities (625). In Indonesia, for example, a broad program including nutrition, primary health care, and income-generating activities such as home gardening and village cooperatives has been developed and operates through the system originally established for family planning. Similarly, in Thailand some of the villages that are part of the Community-Based Family Planning Services network are initiating latrine building, water tank construction, pig raising, home gardens, and conversion of animal wastes into bio-gas (438, 462).

Indirect Measures

For people to have fewer children, they must have, first, the desire and, second, the means to have fewer children. Family planning services give people the means. A number of population policies also seek to influence people to desire fewer children. These policies emphasize the importance of education, lower infant mortality, and increased income in making people want fewer children (743). Thus, population policies often discuss health and nutrition (for example, promotion of breast-feeding), educational goals, migration, and other, broad socioeconomic concerns. Also emphasized is improvement in the status of women. Specifically, population policies have called for increased opportunities for education, literacy, and meaningful employment; greater political, economic and civil rights, including the right of married women to enter into contracts and to inherit property; and equality of the sexes within the family.

POPULATION POLICY-MAKING AND COORDINATING INSTITUTIONS

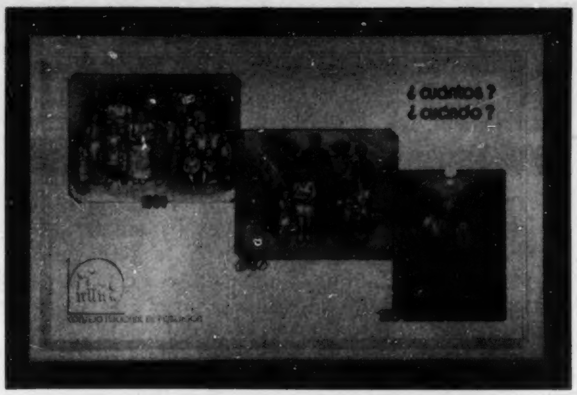
A national population policy, whether included in the national constitution, issued as a separate statement, or adopted as part of a socioeconomic development plan, expresses the intent of the government. It does not guarantee that family planning programs will be implemented, that other measures proposed in the policy will be carried out, or that a sufficient budget will be allocated.

Many countries in Asia and a smaller number in other regions have taken the important step of establishing national population policy-making or coordinating mechanisms at a high level of government to be sure policies are implemented. There is great diversity worldwide, but at least three distinct types of units can be identified:

(1) Small, technical units placed at a high level of government to assure that demographic considerations are included in development planning; these are found in many Asian countries.

(2) Interministerial councils, whose function is to develop, monitor, and in some cases coordinate population policies; these are more common in Latin American and African countries where policies are still being formulated.

(3) Family planning coordinating councils, which have a role in coordinating, funding, and even implementing the government family planning program. Two examples are Indonesia and Mexico.



"How many? When?" asks a modern-day couple in this poster from the National Population Council (CONAPO) in Mexico. Founded in 1974, CONAPO is an interministerial council that oversees all activities relating to population and family planning.

Sometimes technical planning units or interministerial councils co-exist with units that coordinate program implementation.

Technical Units

In some Asian countries technical units have been established to integrate population and development policy. These units usually are composed of technical specialists and are not interministerial in character. For example, Sri Lanka has a Population Division within the Ministry of Plan Implementation, the portfolio of which is held by the country's President. South Korea created a Population Policy and Planning Secretariat within the Korean Development Institute (447, 451, 622, 637).

An example of how these technical units function can be seen in Thailand. In 1969 the government established a Population Sector within the Manpower Planning Division of the National Economic and Social Development Board (NESDB). Restructured in 1975 as one of 11 divisions within the NESDB, the Population and Manpower Planning Division is now responsible for integrating population considerations into the national development plan. Population factors have been considered in development planning since the third National Development Plan (1972–76). The division also helps to formulate population policies, primarily through an interagency subcommittee (343, 451).

Interministerial Councils or Commissions

Many non-Asian countries have established interministerial population councils or commissions. These now exist in the Dominican Republic (441), Egypt (395), Jordan (681), Kenya (310), Lebanon (718), Mexico (132), Nigeria (321), Peru (532), Rwanda (172), Senegal (175), Sierra Leone (626), and Tunisia (596). In Asia, national population commissions have been established in Nepal (635), the Philippines (636), Singapore (456), and South Korea (537, 637). The group may be housed in or chaired by the Ministry of Health, as in Tunisia, the Dominican Republic, Panama, and Egypt; the Ministry of Interior, as in Mexico; the Ministry of Home and Panchayat Affairs, in Nepal; the Ministry of Social Services, in Rwanda; or the Ministry of Planning, in Senegal. Membership in the national council can include the private sector, as in the Dominican Republic (441), or be limited to government institutions, as in Mexico (132).

Some countries have named a smaller subgroup with more technical expertise in family planning and population matters to advise the larger, more political body and, in practice, to oversee programs. For example, in 1965 the Egyptian government created the Supreme Council for Family Planning, later renamed the Supreme Council for Population and Family Planning. An interministerial council, it is ostensibly headed by the President of Egypt, although he has delegated chairmanship to the Minister of Health. The Supreme Council created a technical office, the Population and Family Planning Board (PFPB), to help with monitoring, planning, and evaluation. The PFPB works also at the governorate (province) level, where more than half of its staff of over 400 are located (395, 634).

In general, national councils have a mandate to establish guidelines for, develop, promote, and coordinate national population policy and, in some cases, national family planning programs; to promote, oversee, and disseminate the findings of research on population; and to insure that population factors are considered in development planning and in the programs and policies of ministries other than health. Like technical planning units, they may be concerned with population policies other than family planning.

Family Planning Coordinating Councils

Coordinating councils are found in Indonesia, Malaysia, and Mexico, where strong national committees oversee and even administer the national family planning programs.

In Indonesia the BKKBN, or National Family Planning Coordinating Committee, was established in 1970. It reports to the President. Until recently headed by the Minister of Health, BKKBN is a powerful agency, responsible for formulating population policies, developing strategies for carrying them out, and overseeing the implementation of the national family planning program. In addition to working with the Ministry of Health, BKKBN actually administers family planning programs at the provincial and local levels. External funds for any government family planning activity in Indonesia are channeled through BKKBN (309, 421, 449). In Malaysia the National Family Planning Board carries out similar functions (618).

Mexico has both a family planning coordinating council and an interministerial population council. The 1974 Population Law established the interministerial council, the National Population Council (CONAPO), housed in the Ministry of Interior. CONAPO conducts demographic research and issues guidelines. For example, it set targets for population growth through the year 2000 (490). In 1977 a new President appointed a Coordination Office of the National Family Planning Program to oversee and coordinate the family planning programs of the Ministry of Health, the two Social Security Institutes, and the private sector. CONAPO continued to oversee all activities related to population in Mexico. In 1981 the Coordination Office was reorganized and placed within CONAPO (470, 481).

Among these different types of policy-making bodies, the strength of an organization seems to depend in large part on: (1) a direct line of communication with powerful ministers, leaders of the ruling political party, or a President or First Lady who is strongly supportive of population and family planning policies, (2) allocation of adequate program resources from national and/or international sources, and (3) a competent and dedicated chairperson and a staff of sufficient size. If a national council—whether a committee of ministers or a family planning coordinating group—lacks this support, its impact probably will be limited.

FAMILY PLANNING PROGRAMS

Family planning services constitute the most common government activity to influence fertility. While government support for family planning is now widespread, it has grown to current levels gradually over the last 20 years. In 1965 only 21 countries supported family planning (337, 355). By 1974, 102 of 148 countries—about two-thirds—reported that they supported family planning (613). By 1983 some 127 countries, or more than three-quarters of the 166 countries covered by the 1983 UN Monitoring Report on World Population Trends and Policies, support the provision of modern contraceptive methods (613) (see map, below). These countries account for over 93 percent of the world's population (see Table 2). Government support for family planning may take the form of government-run services. Often family planning is offered along with other services in the national health program. Alternatively, some governments provide grants of money or supplies and facilities to private family planning organizations. Many countries provide both types of support.

In 32 countries, including Japan, Syria, and Greece, governments report that they provide no financial support for family planning but also place no restrictions on family planning (613). Less than 7 percent of the world's population lives in these countries. This category covers a broad range of policies. Romania has a pronatalist policy (739). In contrast, Japan has made legal a variety of birth control measures, and most are readily available through the private sector (499).

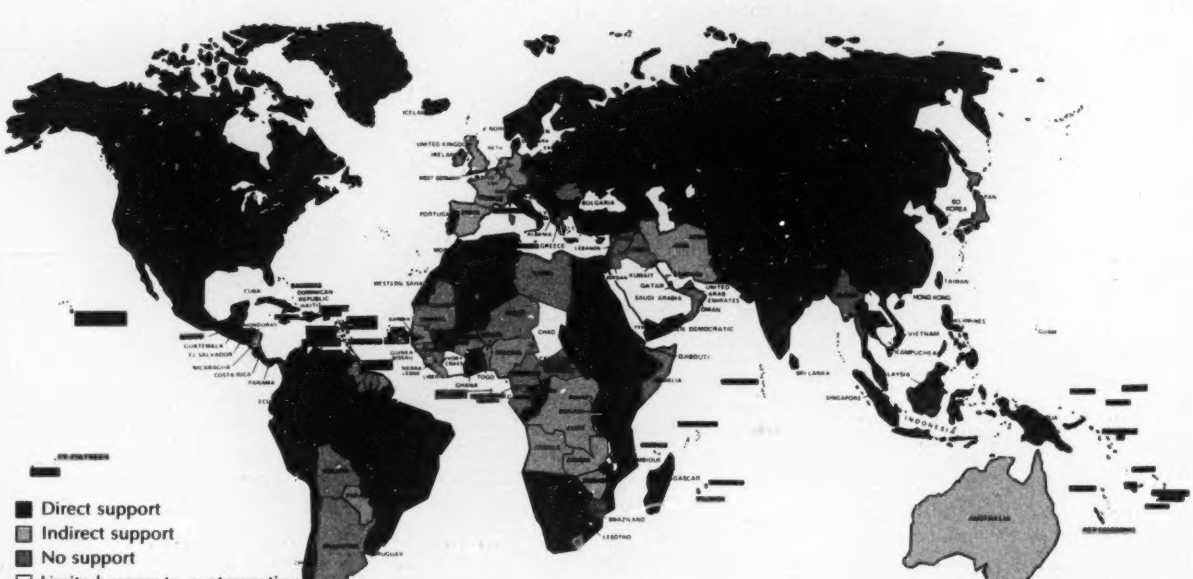
Today less than one percent of the world's population lives in the seven countries that, according to the 1983 UN Monitoring Report, limit access to modern methods of fertility regulation. These seven countries are Chad, Ivory

Table 2. Numbers of Countries with Various Policies Concerning Family Planning, by Region, 1983

Region	Number of Countries (Percentage of Regional Population) with: Restrictions on Family Planning	No Restrictions but No Government Support	Government Support for Family Planning
Africa	3 (5.3)	11 (10.1)	31 (84.6)
Asia & Pacific	2 (0.4)	2 (1.6)	27 (98.0)
Latin America	0 (0.0)	5 (9.4)	27 (90.6)
North Africa & Middle East	1 (5.1)	8 (17.5)	10 (77.4)
All Developing Countries	6 (1.2)	26 (4.3)	95 (94.5)
Developed Countries	1 (0.0)	6 (9.0)	32 (91.0)
World	7 (0.8)	32 (5.9)	127 (93.8)

Source: Based on policies reported in United Nations. Department of International Economic and Social Affairs. Population Division. World population trends and policies: 1983 monitoring report. Population policies (613). Regional classification of countries differs from that used by the UN. Population data from Population Reference Bureau (539).

Government Support for Family Planning


■ Direct support
▨ Indirect support
■ No support
☐ Limited access to contraception
ICELAND
UNITED KINGDOM
IRELAND
WEST GERMANY
PORTUGAL
BULGARIA
ALBANIA
GREECE
LEBANON
KUWAIT
QATAR
SAUDI ARABIA
UNITED ARAB EMIRATES
OMAN
SO. KOREA
TAIWAN
HONG KONG
PHILIPPINES
GUAM
VIETNAM
KAMPUCHEA
SRI LANKA
SINGAPORE
INDONESIA
CUBA
DOMINICAN REPUBLIC
HAITI
HONDURAS
GUATEMALA
EL SALVADOR
NICARAGUA
COSTA RICA
PANAMA
WESTERN SAHARA
GAMBIA
GUINEA BISSAU
SIERRA LEONE
GHANA
TOGO
CHAD
DJIBOUTI
LESOTHO
AUSTRALIA
URUGUAY

Source: Fincancioglu & Dinshaw (400), United Nations (613), and Watson (663)

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Family Planning Recommendations at Mexico City Conference

The 1984 International Conference on Population in Mexico City made the following 10 recommendations on reproduction and the family, putting clear emphasis on family planning:

Recommendation 25
Governments should, as a matter of urgency, make universally available information, education and the means to assist couples and individuals to achieve their desired number of children. Family planning information, education and means should include all medically approved and appropriate methods of family planning, including natural family planning, to ensure a voluntary and free choice in accordance with changing individual and cultural values. Particular attention should be given to those segments of the population which are most vulnerable and difficult to reach.

Recommendation 27
Governments and intergovernmental and non-governmental organizations are urged to allocate, in accordance with national policies and priorities, the necessary resources to family planning services, where these services are inadequate and are not meeting the needs of a rapidly growing population of reproductive age.

Recommendation 28
Governments are urged to improve the quality and enhance the effectiveness of family planning services and of the monitoring of those services, including appropriate follow-up. Coverage should be extended as rapidly as possible to all couples and individuals of both sexes, particularly in rural areas. Family planning services should be made available through appropriate and practicable channels, including integrated health-care programmes (especially maternal and child health and primary health care), community-based distribution, subsidized commercial retail sales, and, in particular, local distribution through retail outlets where health infrastructure and health referral services exist. Also, Governments should bear in mind the innovative role which non-governmental organizations, in particular women's organizations, can play in improving the availability and effectiveness of family planning services. All countries should ensure that fertility control methods conform to adequate standards of quality, efficacy and safety.

Recommendation 29
Governments are urged to ensure that adolescents, both boys and girls, receive adequate education, including family-life and sex education, with due consideration given to the role, rights and obligations of parents and changing individual and cultural values. Suitable family planning information and services should be made available to adolescents within the changing socio-cultural framework of each country.

Recommendation 30
Governments are urged to ensure that all couples and individuals have the basic right to decide freely and responsibly the number and spacing of their children and to have the information, education and means to do so; couples and individuals in the exercise of this right should take into account the needs of their living and future children and their responsibilities towards the community.

Recommendation 31
Legislation and policies concerning the family and programmes of incentives and disincentives should be neither coercive nor discriminatory and should be consistent with internationally recognized human rights as well as with changing individual and cultural values.

Recommendation 32
Governments which have adopted or intend to adopt national fertility goals should translate these goals into specific policies and operational steps that are clearly understood by the citizens.

Recommendation 33
Governments that have adopted or intend to adopt fertility policies are urged to set their own quantitative targets in this area. Countries implementing family planning programmes should establish programme targets at the operational level, respecting the basic right of couples and individuals to decide freely and responsibly the number and spacing of their children, taking into account the needs of their living and future children and their responsibilities, exercised freely and without coercion, towards the community.

Recommendation 34
Family policies adopted or encouraged by Government should be sensitive to the need for:

(a) Financial and/or other support to parents, including single parents, in the period preceding or following the birth of a child, as well as the period during which parents assume the major responsibility for the care and education of children;
(b) A strengthening of child welfare services and child-care provisions;
(c) Maternity and paternity leave for a sufficient length of time to enable either parent to care for the child, with adequate remunerative compensation and without detriment to subsequent career prospects and basic communal facilities that will enable working parents to provide care for children and aged members of their families; and
(d) Assistance to young couples and parents, including single parents, in acquiring suitable housing.

Recommendation 35
Governments wishing to decrease fertility levels should adopt development policies that are known to reduce the level of fertility, such as improved health, education, integration of women and social equity. Governments that view the level of fertility in their countries as too low may consider financial and other support to families to assist them with their parental responsibilities and to facilitate their access to the necessary services. Such policies should not restrict access to education, information and services for family planning.

Coast, Malawi, the Holy See (Vatican), Laos, Kampuchea, and Saudi Arabia (613).

Regional Patterns

Government support for family planning services is widespread in both developing and developed areas. The only major exceptions are francophone sub-Saharan Africa and the oil-producing countries of the Middle East. Among 127 developing countries covered by the 1983 UN Monitoring Report, 95, or 75 percent, support family planning. Among 39 developed countries, 32, or 82 percent, support family planning (613).

In **Asia and the Pacific**, currently 27 of 31 developing countries—87 percent—support family planning services (613). Including the population of over one billion in China and the more than 730 million people in India, 98 percent of the people of the region live in countries with publicly funded family planning services. The other large developing countries of Asia also support family planning—Bangladesh, Indonesia, Malaysia, Pakistan, the Philippines, Thailand, and Viet Nam. Burma and Bhutan provide no such support (613). Laos and Kampuchea limit access to contraceptives under policies adopted in the mid-1970s after civil war and change of government (613, 663).

In **Latin America and the Caribbean** government support for family planning programs also is widespread. Some 27 of 32 countries, accounting for 91 percent of the population of the region, offer government-supported services. Despite these high numbers, government services are generally not as vigorously promoted as in many Asian countries. Private family planning associations and the commercial sector play an important role.

Family planning services are less extensive in **sub-Saharan Africa.** Some 31 of 45 governments report that they support family planning to some degree, according to the 1983 UN Monitoring Report (613). Two-fifths of these 31 countries are reported to be supporting services only indirectly—that is, by grants or provision of facilities to private family planning associations. In all, 85 percent of the population of the region live in countries that support family planning to some degree. Eleven countries provide no support for family planning. Three countries—Malawi, Chad, and Ivory Coast—currently limit access to contraceptives (613).

Over 77 percent of people in the **Middle East and North Africa** live in countries that support family planning to some degree. These include Turkey, Egypt, Morocco, Tunisia, and others—a total of 10 of 19 countries in the region. Eight countries in the region, including Syria and Libya, provide no support for family planning services (613). Together these eight countries account for about 17 percent of the regional population. In Saudi Arabia a royal decree in 1975 banned all contraception (173).

Among the **developed countries**, most in the European region support family planning services. This is true even in Eastern Europe, where many governments want to increase the size of the population (613). In all, 95 percent of Europeans live in the 26 countries that support family planning.

Of developed countries outside Europe, Canada, the US, Australia, and New Zealand all support family planning services (613). The government of the US has supported family planning services since 1970. Motivated by concerns about equity, the program primarily serves those who could not otherwise afford family planning services (393, 652, 693). Most of those receiving services are low-income women, and about one-third are adolescents (393). The US also provides about $150 million annually for research on contraceptive development and evaluation, reproductive biology, social and behavioral aspects of fertility, demography, and program operations (648).

Government Commitment of Resources

While 75 percent of the governments of the developing world support family planning, the extent of the services provided varies greatly from one country to another. Government support may mean minimal services, as in Brazil, where health services in some states provide family planning to women who would face especially high risk in pregnancy and childbearing. Alternatively, government support may mean wide-reaching efforts to inform the public about family planning and encourage its use, to provide supplies and services free of charge or at low cost through government facilities, to take supplies to the most remote rural areas, and to subsidize commercial sales of contraceptives. Several large Asian countries have well-established national programs that serve much of the population. In Latin America, Africa, and the Middle East (with the important exceptions of Mexico, Egypt, Tunisia, and

Increased Support Urged for Population Programs

At Mexico City, 147 governments recommended increased external assistance to population programs and a stronger role for the United Nations Fund for Population Activities in providing assistance:

Recommendation 82

Governments are urged to increase the level of their assistance for population activities in the light of continuing needs in the field and the increasing commitment of developing countries, with a view to reaching the goals set for this purpose in the International Development Strategy for the Third United Nations Development Decade. In this context Governments of developed countries and other donor countries are urged to allocate increased contributions for population and population-related programmes in accordance with national goals and priorities of recipient countries. This increase should not be detrimental to the levels of economic development assistance in other areas.

Recommendation 83

In view of the leading role of the United Nations Fund for Population Activities in population matters, the Conference urges that the Fund should be strengthened further, so as to ensure the more effective delivery of population assistance, taking into account the growing needs in this field. The Secretary-General of the United Nations is invited to examine this recommendation, and submit a report to the General Assembly on its implementation as soon as possible but not later than 1986.

Mauritius), however, extensive and active government programs are few. To varying degrees, people in most of these countries obtain supplies and services from private family planning organizations or from the commercial sector.

One important indicator of the extent of government-funded family planning services is the amount spent on these services. In 1980 developing countries spent an estimated total of $2 billion on their own family planning programs (743). Available data suggest that national allocations to family planning programs and services have grown steadily. Figure 1 shows national government expenditures on domestic family planning programs per married woman of reproductive age. Even though in different years data may cover different countries, expenditures rose rather steadily between 1968 to 1979. Expenditures (in constant 1966 dollars) reached a maximum of about $1.50 (US) per woman of reproductive age in 1978 and 1979.

Most of these data come from long-established Asian programs. A recent detailed study of Asian national family planning programs, conducted by Gayl Ness and colleagues at the University of Michigan, shows that staff, number of facilities, and expenditures have all increased dramatically since 1960 (505). Average annual expenditures (in current dollars) in Asian programs have grown from less than $.20 (US) per married woman of reproductive age in 1960, to about $.80 in 1970, to almost $3.00 by 1980 (505). In Indonesia, for example, the government budget for family planning rose from $5.7 million in 1972 to $49.2 million in 1980—a ninefold increase in less than 10 years (510, 515). The Philippines experienced a 17-fold increase in government allocations between 1972 and 1980, from $1.3 million to $22.4 million dollars (510, 511). While these data do not take account of factors such as use of health facilities without cost to the program, changing currency exchange rates, and inflation, they do provide a rough indication of increasing national commitment over the long term in some countries. Some programs outside Asia also have experienced increases in government funding. In Mauritius the government budget for family planning rose from $97,000 in 1972 to $814,000 in 1980. In Tunisia government expenditures over the same period rose from $143,000 to $654,000 (510, 511).

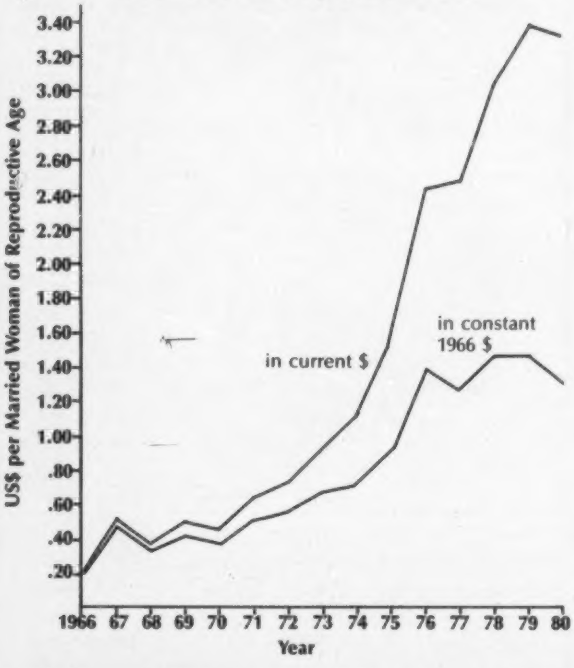

Figure 1. Government Expenditures for Family Planning per Married Woman of Reproductive Age, 1966-1980, Selected Developing Countries*

*Thirty-two countries—14 Asian, 11 Latin American, 4 African, and 3 Middle Eastern/North African. Number of countries in any one year ranges from 7 to 29 with a median of 17.

Sources: Nortman (507–509), Nortman & Hofstatter (511–516), Nortman & Fisher (510), United Nations (599; 600)

Additional measures of national commitment to family planning programs include the number of staff made available to the program and the number of clinics or other facilities created to bring services to the people. Although reliable data are difficult to obtain, available information suggests that the numbers of personnel and facilities devoted to family planning have been growing, at least in Asia. For Asian countries the number of program staff per 1,000 couples of reproductive age grew 10-fold between 1960 and 1980 (505). The number of service points grew from less than 1 to 7.5 per 10,000 eligible couples over the same period (505).

External Assistance

In most developing countries, government family planning expenditures are supplemented by assistance from donor countries provided either directly or through international organizations such as the United Nations Fund for Population Activities (UNFPA) and the International Planned Parenthood Federation (IPPF), which assists private family planning associations. External aid now pays for about one-fourth of all family planning costs in developing countries (743). The US government provided $240 million in fiscal year 1984. Japan, Norway, Sweden, and West Germany also provided substantial amounts (471). Since 1980 donor assistance has amounted to about $450 million annually (see **Population Reports**, *Sources of Population and Family Planning Assistance*, J-26, January-February 1983).

In general, new family planning programs have received substantial donor assistance. As the programs develop and become better established, however, the national governments take on a greater share of the costs. Data collected by the Population Council for 10 established programs—El Salvador, Hong Kong, Indonesia, South Korea, Mauritius, Philippines, Singapore, Taiwan, Thailand, and Tunisia—show that in 1980 an average of 73 percent of the expenditures for family planning were met by the governments themselves. This is a substantial increase over the figure of 41 percent for these same programs in 1972 (510, 511). China, with the largest population in the world and one of the most extensive family planning programs, received no outside funds until the 1980s.

Funding Needs

Despite increases in government expenditures, family planning still accounts for less than one-half of one percent of national budgets in almost all countries. The only reported exception is Bangladesh, where in 1981 the family planning budget accounted for 3.1 percent of the national budget (510). The International Conference on Family Planning in the 1980s, meeting in Jakarta, Indonesia, in 1981, recommended that developing countries allocate about 5 percent of their national budgets to family planning programs (431).

The World Bank estimates that, to achieve the levels of contraceptive use necessary for a rapid decline in population growth, total family planning expenditures in the developing world have to reach $7.6 billion (US) annually by the year 2000. This is four times current expenditures (743).

LAWS ON CONTRACEPTIVES

The current pattern of contraceptive use reflects a virtual revolution in birth control law and practice. Estimates by the Population Information Program indicate that currently about 77 million women worldwide use the IUD, about 56 million use oral contraceptives (OCs), about 35 million couples use condoms, and smaller numbers use other reversible methods. In addition, an estimated 72 million women and 33 million men rely on voluntary sterilization (474). OCs, modern IUDs, and simplified female sterilization—now the most popular methods—have been available for less than 25 years. Substantial legal change has both encouraged and reflected this revolution in contraceptive practice.

Law and policy changes, including changes in ministerial regulations, have helped to expand contraceptive use in a number of ways, by:

- Legalizing distribution of contraceptives,
- Widening the categories of workers who are allowed to supply contraceptives,
- Allowing increased public information and advertising of contraceptives,
- Providing services or education for young people,
- Easing import requirements.

Governments also have attempted to maximize the effectiveness and safety of certain types of contraceptives by determining which products may be sold or distributed.

These changes have made it easier to obtain safe and effective contraceptives through the private sector as well as through government services. In the developed countries except in Eastern Europe, the great majority of contraceptive users obtain their supplies and services from the private commercial sector. In developing countries Contraceptive Prevalence Surveys conducted in the late 1970s found that between one-quarter and one-third of contraceptive users obtained supplies from private doctors or pharmacies (see **Population Reports**, *Contraceptive Prevalence Surveys: A New Source of Family Planning Data*, M-5, May–June 1981). Also, in over a dozen countries major social marketing programs sell contraceptives through established commercial outlets at a low price made possible by government financial support (see **Population Reports**, *Social Marketing: Does It Work?*, J-21, January 1980).

In many countries private nonprofit agencies have been the first groups to offer family planning services. The 103 family planning associations that are affiliates of the International Planned Parenthood Federation (IPPF) serve over 5 million people (436). A number of IPPF affiliates, including those in India, Jamaica, Kenya, and Nepal, receive government support (399). How effectively the private sector can operate in providing family planning services and supplies depends greatly on the national laws and policies relating to contraceptives.

There are a number of ways to facilitate the distribution and sale of contraceptives. Legalizing distribution and sale is a necessary first step in countries where it is legally prohibited. In countries where contraception is not legally prohibited, policy-makers have moved to facilitate contraceptive distribution and sale by, for example, taking oral contraceptives (OCs) off prescription to encourage retail sale, providing funds for training of family planning workers, and by encouraging distribution of contraceptives through health clinics.

Legalizing Contraceptive Distribution and Sale

A number of countries have recently repealed old laws that forbade anyone, whether private-sector or government, to distribute contraceptives. Many of these countries are French-speaking nations of Africa. On independence many former French colonies had retained a provision from a 1920 French law (70) that banned advertising of contraceptives and, by interpretation, also banned their distribution (638). In 1961 Tunisia became the first to

Development Law and Policy Program Assists Lawyers and Policy-Makers

The Development Law and Policy Program, a part of Columbia University's Center for Population and Family Health, was established in 1983. It endeavors to assist developing-country lawyers and policy-makers in their efforts to remove legal and policy barriers affecting population, family planning, family health, and the status of women.

A small staff of attorneys located at Columbia University in New York City, backed up by policy specialists from around the world, provides a wide range of services to lawyers, parliamentarians, national population councils, public policy groups, and others involved in population and development policies. These services include:

- Written information about laws and policies. This includes texts of laws, analysis of policies, examination of trends, etc.
- Small grants to private policy groups interested in laws related to population, family planning, family health, and the status of women.
- On-site technical assistance in reviewing draft legislation, conducting legal/policy analysis, and drafting model legislation.
- Funding a limited number of observation tours and seminars for lawyers, policy-makers, and public policy groups.

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repeal this law (214), six years before France abandoned its restrictive legislation (71). Most recently, five French-speaking countries have changed their laws—Mali in 1972, Cameroon and Senegal in 1980, Ivory Coast in 1982, and Lebanon in 1983 (176, 300, 313, 638, 738).

Mexico, Spain, and Italy have passed legislation in the past 10 years to legalize contraceptive distribution and sales. Mexico's 1974 General Population Law made clear that the government favored wide distribution of contraceptives (132). It established the national family planning program, which provides information, education, and free contraceptive services. After the enactment of this law, the Mexican Congress repealed provisions of the health code that had prohibited distribution of contraceptives (470). Spain and Italy legalized contraception in 1978. Spain repealed in 1941 law prohibiting the distribution and sale of contraceptives (187). The 1978 law and ministerial regulations authorized the opening of 74 government-sponsored clinics and facilitated regulations for licensing and manufacture of contraceptives (187, 472). The Spanish law stops short, however, of making family planning part of the country's national health program (472).

In Italy the 1978 Law on Social Protection of Motherhood legalized contraception, including voluntary sterilization (111). It required regional health authorities to provide training courses for health personnel on family planning methods and sex education (110). The 1978 law creating the national health service established as one of its objectives responsible and planned parenthood and mandated its local health units to provide family planning services (112). Ireland legalized contraception in 1979 but significantly restricted its availability. All contraceptives (including condoms and spermicides) require a doctor's prescription and can be obtained only in pharmacies (106).

One approach, utilizing administrative law, that facilitates the distribution of contraceptives is to include them on the essential drug list, often known as a formulary. Formularies may be approved at a local level, as in the form of a list of drugs available through a hospital pharmacy, or at a national level. National formularies usually specify which drugs will be provided by the national health system (661). The World Health Organization model list of essential drugs includes contraceptives (676). In contrast, Brazil did not include contraceptives on its recently issued essential drug list (317). Ministry of Health regulations issued in 1984, however, legalize the manufacture, sale, and insertion of copper IUDs in Brazil (680).

Widening Categories of Workers

Over the past decade a number of countries have expanded access to OCs by broadening the categories of workers who may distribute them. There have been four approaches:

- Prescription requirements have been eliminated (see Table 3). This expands the number of distribution channels for OCs and the classes of personnel who can supply them. It legitimizes nonprescription sales in pharmacies and other shops. It facilitates OC sales through social marketing programs and distribution through community-based programs (see **Population Reports**, *Community-Based Health and Family Planning*, L-3, November–December 1982). Among the countries where no prescription is needed for OCs

Table 3. New Laws and Policies on Prescription Requirements for Contraceptives, Selected Countries, 1974–1983

Region & Country	Ref. No.	Year	Action Taken
AFRICA			
Cameroon	24	1980	Estrogen-containing contraceptives to be sold by prescription only. (Law also repeals previous ban on contraceptives.)
ASIA & PACIFIC			
Hong Kong	87	1975	Prescription required for hormonal pills, including OCs, over a specified dosage.
Papua New Guinea	149	1975	Authorizes pharmacy sales of low estrogen OCs without prescription.
Sri Lanka	192	1975	Abolishes prescription requirement for OCs.
LATIN AMERICA & CARIBBEAN			
Argentina	7, 614	1974	Medical contraceptives require prescription by three medical authorities. (This decree was not renewed and so automatically repealed.)
Brazil	370	1979	Sale of OCs to regulate menstrual cycle permitted.
	680	1984	Distribution of copper-bearing IUDs permitted.
El Salvador	62	1979	Medical technicians and pediatric nurses permitted to prescribe OCs.
Jamaica	115	1974	Abolishes prescription requirements for OCs.
Trinidad & Tobago	213	1979	Sets prescription requirements for some 30 brands of oral contraceptives.
MIDDLE EAST & NORTH AFRICA			
Algeria	5	1976	OCs available from pharmacists by prescription only.
Iraq	428	1975	Authorizes pharmacy sales of OCs without prescription.
	308	1982	Decision of Ministry of Health places OCs under prescription.
	308	1983	1982 decision of Ministry of Health repealed.
Morocco	133	1975	Resupply of orals at dispensaries authorized. Initial prescription by doctor or paramedic required.
DEVELOPED COUNTRIES			
Czechoslovakia	47	1977	OCs must be prescribed separately for each cycle during first 3 cycles and thereafter prescribed for only 3 cycles at a time.
Hungary	88	1977	IUDs may be inserted only in hospital obstetric and gynecological units after woman has given informal consent.
United Kingdom	226	1978	As an emergency supply, one cycle of OCs may be sold or provided without prescription.

OCs = oral contraceptives; IUDs = intrauterine devices are Antigua, Bangladesh, China, the Dominican Republic, Egypt, Grenada, Hong Kong, Nepal, Pakistan, the Philippines, and South Korea (367, 370, 526, 638). Countries that have eliminated prescription requirements within the last 10 years include Sri Lanka (192), Jamaica (115), Iraq (308, 428), and, for one cycle only, as an emergency supply, the UK (226). In many other countries prescription requirements may exist but are not enforced.

- Nonphysicians are allowed to distribute oral contraceptives on a regular basis, and users experiencing side effects are referred to health facilities (530) (see Table 4). Nurses, midwives, and pharmacists are permitted to provide OCs in this manner in Sri Lanka (638); auxiliary nurses and auxiliary midwives, in Thailand (553); Lady Health Visitors, in Bangladesh (540); nurses, midwives, and barefoot doctors, in China (445); village health workers, in Mexico (470); and midwives, in Sweden (199). In Colombia rural health promoters now distribute OCs, condoms, and spermicidal foam (443). The 1983 Turkish law authorizes nurses and midwives to distribute various contraceptives including OCs (221).
- Family planning workers other than doctors are allowed to provide the initial supply of OCs, but the woman must see a doctor within a specified period of time (see Table 4). In India 1983 regulations of the Ministry of Health permit village health workers to distribute pills. Clients must see a physician within six months. This change increased the number of distribution points for OCs from 43,000 to 250,000 (358). In Barbados nurses, auxiliary nurses, and midwives can provide OCs, but a woman must see a doctor within three months (353).
- A physician prescribes the first cycle of OCs, but a nonphysician can resupply users. This is the case in Morocco (638) and Brazil (443), for example.

A number of countries, including Barbados, Bangladesh, Chile, China, Hong Kong, Morocco, Mexico, Pakistan, the Philippines, South Korea, Thailand, and Turkey, permit trained nonphysicians to insert IUDs (221, 370, 530, 638) (see Table 4). In Bangladesh trained nonphysicians also perform mini-lap female voluntary sterilizations (707). Evaluations throughout the world have determined that trained nurses and auxiliary nurses can perform routine family planning tasks, including IUD insertions, as capably as physicians (396, 519, 654, 677) (see **Population Reports**, *IUDs: An Appropriate Contraceptive for Many Women*, B-4, July 1982).

Information and Advertising of Contraceptives

A number of countries around the world have recently removed restrictions on communication about contraception. Some of the new laws deal with information generally. Others deal with advertising of specific products and services (see Table 5).

Some governments have repealed legislation specifically prohibiting information about contraceptives. This happened as early as 1961 in Tunisia (214), 1967 in France (71), 1972 in Mali (638), and 1974 in Jamaica (115), and, more recently, in Brazil in 1979 (21), Cameroon and Senegal in 1980, Ivory Coast in 1982 (738), and Lebanon in 1983 (176, 300, 313). In Italy, revisions of the criminal code in 1978 removed a provision forbidding "anticonceptional propaganda" (111). The courts had declared this provision unconstitutional in 1971 (638). In Spain the editor of a major Madrid newspaper was threatened with prosecution in 1977 for publishing a factual article on various methods of contraception. He argued that readers had a right to the information. Prosecution was dropped. In 1978, when the Penal Code was amended, the provision restricting contraceptive information was dropped along with the prohibition on contraceptive sales and services (187, 526).

In the US, court cases have helped remove barriers to contraceptive advertising. In 1977 the US Supreme Court

Table 4. New Laws and Policies Expanding the Role of Various Health Care Personnel in Contraceptive Distribution, Selected Countries, 1974–1984

Region & Country	Ref. No.	Year	Action Taken
ASIA & PACIFIC			
Afghanistan	324	1978	Family guides, auxiliary nurse-midwives, and traditional midwives authorized to distribute OCs.
Fiji	63	1978	Medical assistants authorized to provide advice, guidance and assistance concerning family planning.
India	94	1977	Paramedical personnel authorized to distribute OCs.
	358	1982	Categories of personnel authorized to distribute OCs expanded. Recipient must be seen by physician within 3 months.
Philippines	311	1976	Paramedic Certifying Board created to regulate IUD insertion and OC distribution by midwives and nurses.
Sri Lanka	192	1978	Trained nurses, midwives, and pharmacists allowed to prescribe and dispense OCs.
LATIN AMERICA & CARIBBEAN			
Brazil	680	1984	Physicians permitted to insert IUDs. Pharmacies may sell IUDs to women with prescriptions.
Chile	30	1974	Trained midwives permitted to distribute OCs and IUDs.
	32	1976	Simplifies training procedures for midwives authorized to prescribe IUDs and OCs in understaffed areas of country.
Barbados	353	1977	Nonphysician may provide OCs if recipient is seen by physician within 3 months.
MEDITERRANEAN & MIDDLE EAST			
Turkey	221	1983	Nurse-midwives authorized to insert IUDs.
DEVELOPED COUNTRIES			
Sweden	198	1978	Trained midwives authorized to prescribe contraceptives on a trial basis.
	199	1980	Midwives authorized to prescribe contraceptives on continual basis.

OCs = oral contraceptives; IUDs = intrauterine devices

Table 5. New Laws and Policies Regarding Contraceptive Information and Advertising, Selected Countries, 1974–1983

Region & Country	Ref. No.	Year	Action Taken
AFRICA			
Cameroon	300	1980	Repeal of French law of 1920 prohibiting propaganda for contraception.
Ivory Coast	738	1982	Repeal of French law of 1920 prohibiting propaganda for contraception.
Senegal	176	1980	Repeal of French law of 1920 prohibiting propaganda for contraception.
ASIA & PACIFIC			
Malaysia	126	1980	Contraceptive advertising prohibited except by government or other authorized bodies.
LATIN AMERICA & CARIBBEAN			
Argentina	7, 614	1974	Contraceptive advertising restricted. (This decree was not renewed and so was automatically repealed.)
Bolivia	238	1982	Regulations concerning government family health activities list postnatal family planning counseling and sex education for adolescents as high priorities.
Brazil	21	1979	Contraceptive advertising decriminalized.
Jamaica	115	1974	Commercial advertising of contraceptives permitted.
MIDDLE EAST & NORTH AFRICA			
Lebanon	313	1983	Repeal of French law of 1920 prohibiting propaganda for contraception.
DEVELOPED COUNTRIES			
Australia (State of Victoria)	8	1974	Contraceptive advertising prohibited except for contraceptives registered by Health Department.
Canada	25	1975	Advertising of contraceptive devices permitted, except door-to-door.
Denmark	52	1979	Truth in advertising of contraceptives mandated.
France	67	1974	Contraceptive advertising prohibited except in medical and pharmaceutical publications.
Greece	732	1980	Authorization to advertise OCs as contraceptives.
Italy	111	1978	Provision of criminal code forbidding "anticonceptional propaganda" repealed.
Luxembourg	123	1978	Government-subsidized regional centers to provide counseling and information on family matters.
Portugal	732	1976	Repeal of law forbidding advertising of contraceptives in medical journals.
Spain	187	1978	Contraceptive information and advertising decriminalized.
United States	259	1977	State law prohibiting advertising of contraceptives declared void by Supreme Court.
	258	1983	Regulation prohibiting mailing of contraceptive advertising declared void by Supreme Court.

struck down state laws prohibiting contraceptive advertising (259) and, in 1983, a post office regulation against mailing of contraceptive advertising (258). A court decision on another issue in 1982 forced the National Association of Broadcasters, an organization of radio and television stations, to abandon its codes concerning advertising. Those voluntary codes banned advertising for contraceptives (388). Recently, advertisements for spermicides and the contraceptive sponge have appeared on radio and independent television (719, 720). Still, most stations and the major broadcast networks refuse such advertising (388, 719, 720).

Some countries allow contraceptive advertising but only by agencies with government approval. The argument for these policies is that they will assure that contraceptive advertising is "in good taste." Such a policy has been adopted recently in Malaysia (126). This was a restrictive change, since there had been no previous limits on advertising.

Restrictions or uncertainties concerning contraceptive advertising remain in a number of countries. Sometimes obscenity laws—or fear of their application—have prevented contraceptive advertising (531). Prescription drugs, which in many countries include OCs and IUDs, generally are not advertised to the public (530). Often the media will not accept contraceptive advertising, not because of law, but because of fear of public reaction (388).

Services and Information for Young People

Throughout most of the world adolescents traditionally have had less access to contraceptive services and information than adults (378, 422, 458, 531). Now some governments are exploring new ways to make family planning services and information more accessible to young people who need them (363, 430). They are concerned about the social and health problems caused by adolescent pregnancy and childbearing. For example, maternal mortality rates generally are about 1½ to 2 times higher among women age 15–19 than among women age 20–24 (593). Risks are particularly high in the youngest women.

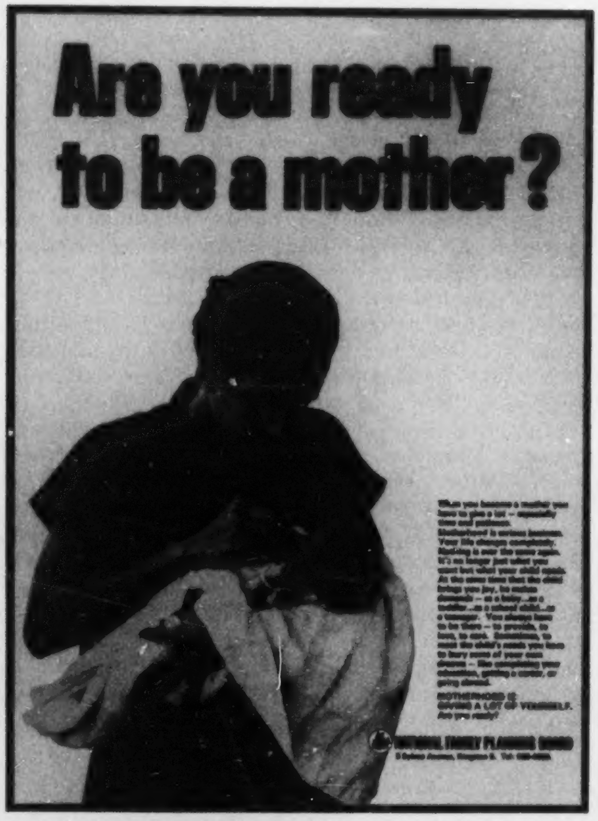
Services. One approach that has been taken in some countries is to relax laws requiring parental consent for family planning services to adolescents. Such requirements were based historically on the view that minors were legally the possessions of their parents. Thus they lacked the legal capacity to make important decisions, including decisions about their own health care (457, 524). In some countries, however, such as Thailand and Hong Kong, contraceptives are now available to all regardless of age or marital status (531). In the US a series of legal changes has increased the availability of contraceptives to young people. Some US states have lowered the age of consent for health care, which includes the provision of contraception (534). In 1977 the US Supreme Court voided a state law that outlawed sales of nonprescription contraceptives to anyone under age 16 (259). In 1983 US federal courts struck down administrative regulations requiring that parents be notified when prescription contraceptives—pills and IUDs—were provided to their children in federally funded programs (260). At the same time, parental involvement is strongly encouraged.

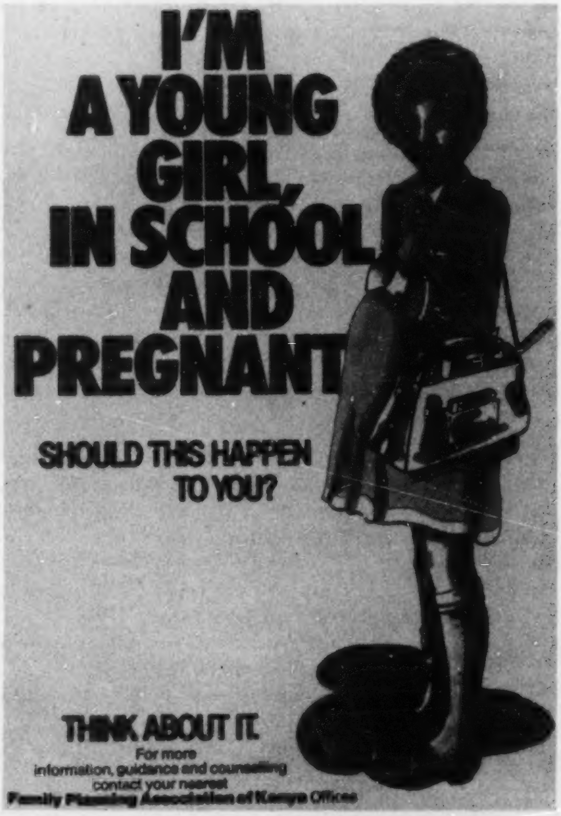
Some European countries also allow adolescents to obtain contraceptives without informing parents. In the United Kingdom guidelines of the Department of Health and Social Services published in 1981 recommend but do not require parental consultation. They emphasize the importance of patient-doctor confidentiality (225). In 1983 a British court upheld the guidelines, ruling that people under age 16 are entitled to contraceptives without parental consent or knowledge since the alternative would be unwanted pregnancies, abortions, and venereal disease (257). The decision is being appealed (305). Swedish law goes further. It not only gives anyone over age 15 the right to seek contraceptives without parental consent, but it also forbids physicians from informing parents that their children have received contraceptives (347). In Denmark, under a 1966 law, anyone over the age of 15 may obtain contraceptives without parental consent (49). A recent law in the Netherlands permits a doctor in an approved birth control center to provide OCs to a woman under age 21 even if the recipient wants to remain anonymous (135).

Some countries have mandated specific activities to serve young people. In Brazil, for example, where government-supported family planning services are not extensive, a 1977 regulation of the Ministry of Health stated that contraceptives including OCs would be provided free of charge to poor women who would be at high risk during pregnancy—those under age 20 as well as those over age 40 (629). In Luxembourg a 1978 law specifically declares that all government family planning services are free to minors (123). Such activities are the exception rather than the rule, however. A 1978 survey of 91 developing countries found only seven programs providing family planning services especially for adolescents (488).

In-school education. Another approach is to provide sex education programs in the schools, either on a voluntary or mandatory basis. In Asia, for example, China and the Philippines provide universal sex education (457, 531). In many Latin American countries, "family life education" courses are offered in the schools. The governments of Mexico and Costa Rica have been especially active in establishing national sex education programs in the schools and including relevant materials in textbooks (441, 531). In the US, decisions about sex education, like most other decisions about public school curricula, are made by local or state authorities. Several US states and the District of Columbia require sex education in the schools (552). Usually students who object—or whose parents object—are allowed to leave the classroom.

European countries that require sex education in the schools include Sweden, Denmark, France, West Ger-


Are you ready to be a mother?
MOTHERHOOD IS GIVING A LOT OF YOURSELF.
Are you ready?
NATIONAL FAMILY PLANNING BOARD


I'M A YOUNG GIRL, IN SCHOOL AND PREGNANT
SHOULD THIS HAPPEN TO YOU?
THINK ABOUT IT.
For more information, guidance and counselling contact your nearest Family Planning Association of Kenya Offices

Traditionally adolescents have had less access to family planning information and services than adults. Organizations in a number of countries, including Jamaica and Kenya, are exploring new ways to make family planning information available to young people.

many, Iceland, Luxembourg, and the communist countries of Eastern Europe (552). In 1981 the French government, concerned by survey results that showed only 15 percent of young people were properly informed about contraception, shifted from a voluntary to a mandatory contraceptive information program in secondary schools and universities (75, 304). In a case before the European Court on Human Rights in 1976, parents tried to exempt their children from required sex education classes in Danish public schools. The court rejected their attempt, ruling that required classes did not violate human rights. The court pointed out that sex education was intended to reduce the "excessive frequency of births out of wedlock, induced abortions, and venereal disease" (251). Some European countries, particularly Scandinavia, have established extensive training programs to prepare teachers of sex education courses (531).

Marriage counseling. Counseling couples just before they are married is another way to help young people. In 1976 the Philippines enacted a requirement for such counseling (159). In Luxembourg the 1978 law that requires sex education in the schools and free contraceptive services for young people also requires the government to prepare an information booklet and make it available free of charge. Local authorities must give this booklet to all couples who apply for marriage licenses. All students who complete primary school also must receive copies. This same law sets up regional centers for information and consultation on birth control. Information and consultations are free of charge to all (123).

Maximizing Contraceptive Safety and Efficacy

To protect consumers, many countries have drug regulatory agencies charged with overseeing the safety and effectiveness of drugs used in that country. Certain types of contraceptives, such as OCs, fall under the authority of these agencies.

Regulatory agencies exercise a variety of powers (370). They have the authority to approve new products for marketing or withhold them from the market. They can require labels to state information necessary for appropriate use. In the US, for example, the US Food and Drug Administration (US FDA) requires specific information sheets, known as package inserts, to accompany OCs and IUDs (227). Regulatory agencies also can monitor the use of products after marketing and order them withdrawn from the market if they prove unsafe or ineffective.

Standards for regulatory approval vary, but decisions are based chiefly on preclinical and clinical trials demonstrating the safety and effectiveness of the product (370). In the last several years a number of national drug regulatory agencies have approved various new contraceptives. These include:

- In Sweden in 1981 and the UK in 1984, approval of the injectable contraceptive Depo-Provera (195, 736),
- In the US, Mexico, Canada, and Finland, approval of various new IUDs in 1979–82 (473),
- In Egypt reapproval of the injectable contraceptive Depo-Provera in 1983 (685),
- In Bangladesh and Spain approval of the injectable contraceptive Noristerat in 1983 (730),
- In Finland approval of the Norplant contraceptive implant in 1983 (565),
- In the US, UK, Netherlands, Norway, Switzerland, and Singapore, among others, approval of the spermicide-releasing contraceptive sponge in 1983 (452, 584).

Table 6. New Laws and Policies Regarding Importation of Contraceptives, Selected Countries, 1974–1983

Region & Country	Ref. No.	Year	Action Taken
ASIA			
India	94	1976	Import of family planning equipment permitted.
Korea, Rep. of	738	1982	Various tariffs on contraceptives abolished.
Sri Lanka	454	1980	Approved contraceptives exempted from import duties.
Thailand	211	1977	Contraceptives exempted from import duties.
LATIN AMERICA & CARIBBEAN			
Jamaica	115	1974	Customs duties on contraceptives removed or reduced.
Peru	154	1977	Ministry of Health declared responsible for import of contraceptives and equipment.
MIDDLE EAST & NORTH AFRICA			
Turkey	221	1983	Import of contraceptives requires permission of Ministry of Health.
OTHERS			
French overseas territories	65	1974	Import and manufacture of contraceptives authorized.
Ireland	106	1979	Manufacture and import of contraceptives requires license from Ministry of Health.

While drug regulatory agencies are chiefly concerned with their own countries, their decisions may affect exports as well. In the US, for example, drugs—including hormonal contraceptives—cannot be exported unless they are approved for US use by US FDA (650). Under a different law, however, medical devices, including IUDs, may be exported even if they do not have US FDA approval. They must, however, meet the specifications of the importing country, be legal there, and be labeled as intended for export (230). Because the US FDA has not approved Depo-Provera for use as a contraceptive in the US, the US Agency for International Development (US AID) does not provide Depo-Provera as part of US foreign assistance (328, 409) (see **Population Reports**, *Long-Acting Progestins—Promise and Prospects*, K-2, May 1983).

Approval by the national regulatory agency is one necessary step in the process of bringing a new contraceptive to market. Also crucial is registration of the trademark with the government. Registration gives the trademark holder the exclusive legal right to use the registered name for its product. Without trademark registration, most companies are unwilling to market a product (432).

Easing Import Requirements

Many countries levy duties on the importation of contraceptives or raw materials for contraceptives. Duties may be imposed, along with tariffs on other products or materials, to raise revenue or to conserve foreign exchange, or they may be imposed specifically to protect local manufacture of contraceptives. Import duties vary widely among countries and among products. For example, contraceptives are permitted to enter duty-free in Egypt, Bangladesh, and Tunisia. In contrast, Uganda imposes a 50 percent duty on imported contraceptives, while in Colombia tariffs range from 26 to 45 percent (510).

Recognizing the importance of keeping prices low so that many people can buy contraceptives, some countries have recently dropped import duties (see Table 6). For example, Thailand eliminated import duties on contraceptives in 1977 (211). South Korea dropped various tariffs on contraceptives in July 1982 (738).

Most countries require that imported therapeutic drugs, including hormonal contraceptives such as OCs and injectables, meet the same national safety and quality standards imposed on drugs produced in-country. A number of countries base their contraceptive regulatory decisions at least partly on those of developed countries. Some countries go further and require a "certificate of free sale," testifying that the drug is sold in the exporting country. Some require in addition that at least one of the three most stringent national regulatory agencies, the US FDA, the UK Committee on the Safety of Medicines, or the Swedish Board of Drugs, has approved the drug for use in those countries. This requirement is sometimes specified in Ministry of Health regulations, but often it is an unwritten, de facto policy that can be applied with considerable flexibility (370).

The most obvious recent example is Depo-Provera. Political controversy over the product in developed countries, along with US FDA refusal to approve it for contraceptive use in the US, has made some developing countries reluctant to approve its importation from Belgium, where international supplies are manufactured. In Sweden, the National Board of Health and Welfare in 1981 approved licensing of Depo-Provera for contraception (195). Egypt, which had withdrawn Depo-Provera from use in its family planning program, has recently reconsidered, and in 1983 Depo-Provera was reapproved (685). In 1984 an appeals committee in the UK concluded that evidence does not suggest that Depo-Provera poses any major or life-threatening risks (708). As a result, the Minister of Health has reversed a 2-year-old decision against licensing the injectable for long-term use (682). Depo-Provera, however, "is only recommended for use where no other contraceptive method is suitable" (736).

LAWS ON VOLUNTARY STERILIZATION

Voluntary sterilization has become the world's most widely used method of fertility control. An estimated 105 million couples of reproductive age use it to prevent pregnancies. In countries as diverse as Colombia, Costa Rica, the Dominican Republic, India, South Korea, Panama, Sri Lanka, Thailand, Tunisia, and the United States, voluntary sterilization is a major method of fertility regulation (412, 467, 474) (see **Population Reports**, *Legal Trends and Issues in Voluntary Sterilization*, E-6, March–April 1981).

Countries can be divided into four categories based on the legal status of voluntary sterilization (583).

(1) **Countries where voluntary sterilization for family planning is specifically permitted by special provisions of law—either statutes, ministry regulations, or presidential decrees.** This is the case in many countries including Austria, Cuba, Czechoslovakia, Denmark, the Dominican Republic, Ecuador, Finland, Iceland, New Zealand, Norway, Panama, the Philippines, El Salvador, Singapore, Spain, Sweden, Tunisia, and Turkey.

(2) **Countries where voluntary sterilization is legal because there is no law that can be interpreted as prohibiting it.** The largest number of countries fall into this category. They include common law countries—those whose legal codes derive from English law—such as the UK, US, Canada, India, Bangladesh, Ghana, Nigeria, Kenya, and Pakistan. They also include such countries as China, the Philippines, Mexico, Tunisia, and West Germany.

(3) **Countries that have not clarified the legality of voluntary sterilization.** They include some civil law countries--those with legal codes based on continental European practice—including most French-speaking African countries and some countries of Europe and Latin America. In these countries criminal code provisions banning "intentional bodily injury" were once interpreted as applying to voluntary sterilization for family planning even though the person voluntarily consented. In addition, the legality of voluntary sterilization may be unclear in countries where Islamic religious law governs. Some religious authorities interpret Islamic law as forbidding voluntary sterilization (but not temporary contraception) (583). In some Islamic countries, however, voluntary sterilization is included in national family planning programs. In all these countries prosecutions of doctors for performing voluntary sterilizations are virtually unknown.

(4) **Countries where voluntary sterilization for family planning purposes is illegal under statute, ministry regulations, or decree.** These countries are few in number, including Burma, Chile, Iran, Peru, Saudi Arabia, and Somalia (22, 31, 155, 173, 180, 612).

As with other laws affecting family planning, practices and law sometimes differ. For example, voluntary sterilization procedures are generally available in Belgium and France even though legal doctrine has until recently considered them clearly illegal (554, 583). In Japan voluntary sterilization for contraception is readily available even though the law authorizes sterilization only for eugenic and therapeutic purposes (554). In a number of countries where statutes do not specifically address sterilization, government agencies offer voluntary sterilization, thus making clear that the procedures are legal (583).

The recent trend throughout much of the world has been to reduce or remove restrictions on voluntary sterilization and to clarify its legality (see Table 7). This trend is transforming what had been an issue of criminal law into a matter of individual health and welfare and of personal choice (583). Actions have been taken by various bodies to assure that people who genuinely want sterilization have access to it. They include new laws or regulations legalizing voluntary sterilization, resolutions by international bodies, and court decisions. Since voluntary sterilization

Table 7. Changes in Laws Regarding Voluntary Sterilization (VS), Selected Countries, 1973–1984

Region & Country	Ref. No.	Year	Action Taken
AFRICA			
Ivory Coast	113	1981	Penal code legalized VS done by physician in good faith with patient's consent. Sterilizations not meeting these requirements punishable by death.
Mozambique	315	1980	Women over age 35 generally may obtain VS with spousal consent.
ASIA & PACIFIC			
Iran	99	1976	Penal code amended to legalize VS on request.
	612	1980	Repeal of 1976 law.
Philippines	160	1976	Presidential decree extends social security coverage to VS.
Singapore	178, 179	1974	VS allowed on request of any married person. Parity, board authorization, and waiting period requirements dropped.
	559	1976	License to marry Singapore citizen granted to foreigner, if the couple is already expecting a child, only if they agree to VS after second child.
LATIN AMERICA & CARIBBEAN			
Chile	29	1974	VS made available for medical or socioeconomic reasons.
	31	1975	VS no longer available for socioeconomic reasons; can be performed only on medical grounds.
Colombia	631	1979	VS included in national family planning program.
	240	1984	Informed consent required in government programs. Incentives to choose one family planning method over another forbidden.
Ecuador	57	1982	VS made legal for medical or social reasons at request of client.
Honduras	241	1983	Ministry of Health regulations authorize VS and establish informed consent procedure.
Peru	155	1976	Sterilization as a means of fertility control forbidden.
El Salvador	612	1974	Regulations issued by Ministry of Health authorize and set up guidelines for VS in family planning programs.
	62	1979	Comprehensive Ministry of Health regulations on VS, including provisions on informed consent and the mentally incompetent.
MIDDLE EAST			
Iraq	318	1980	Ministry of Health ban on female sterilization cancelled.
Saudi Arabia	173	1976	Royal decree banned all contraception.
Tunisia	639	1973	President proclaimed medical sterilization acceptable method of family planning.
Turkey	221	1983	Authorizes VS on request of adults over 17, with spousal consent.
DEVELOPED COUNTRIES			
Austria	13	1974	Allows VS on request.
Canada	250	1979	Quebec Superior Court ruled voluntary sterilization was not a violation of "public order" and so legal.
Europe	41	1975	Council of Europe resolution recommended broader availability of VS services.
Denmark	50, 51, 53	1976	Persons at least age 25 granted right to VS.
Germany, Federal Republic of	255	1976	Supreme Court ruled VS for contraception lawful.
France	346	1983	By French Medical Council decision, grounds for VS should not be limited to very serious medical reasons. Decision can be made by individual physician. Requires informed consent and a 2-month wait; spousal consent desirable.
Iceland	89	1975	Restrictions dropped. VS available on request if over age 25.
Italy	111	1978	Prohibition on VS dropped.
Luxembourg	123	1978	Government family health centers required to provide VS information and services.
New Zealand	137	1977	Comprehensive law regulating VS passed.
Norway	146	1977	VS permitted on request for persons over age 25; can be authorized by committee for those younger.
South Africa	181, 182	1975	Sterilization permitted on request.
Spain	184	1983	Law amended to permit VS.
Sweden	196, 197, 200	1975	Restriction on VS dropped.
Switzerland	202	1983	Swiss Academy of Medical Sciences clarified Code of Medical Ethics to make certain that VS is legal.
United States	229	1977	Foreign Assistance Act prohibits use of US funds "to pay for performance of involuntary sterilizations as a method of family planning or to coerce or provide any financial incentive to any person to practice sterilizations."
Yugoslavia	235	1977	In Slovenia persons at least age 35 permitted to obtain VS after 6-month wait.
	234	1978	In Croatia persons at least age 35 years permitted to obtain VS after 6-month wait.

is generally irreversible, policy-makers are also concerned to prevent abuses and to make sure a person does not later regret voluntary sterilization. Thus some governments have established informed consent procedures; set penalties for coercion; and set age, parity, and other requirements on who may obtain voluntary sterilization.

New Statutes, Regulations, Resolutions, and Court Decisions

Since 1973, at least 24 countries have taken some type of action to establish the legality of voluntary sterilization. Actions have taken various forms—statutes, presidential decrees, ministerial regulations, codes of medical ethics, international resolutions, and court decisions.

Statutes. In 1983 Turkey and Spain passed laws to permit sterilization on request. In both countries previous statutes had clearly prohibited voluntary sterilization. The Turkish law requires spousal consent but no other special requirements for the voluntary sterilization of a consenting adult (221). The Spanish law, an amendment to the criminal code, legalizes voluntary sterilization performed by a doctor on a mentally competent adult who freely consents to the procedure (389, 390). Since 1973 five other European countries also have adopted statutes specifically legalizing voluntary sterilization—Denmark in 1973, Austria in 1974, Iceland and Sweden in 1975, and Norway in 1977 (see Table 7).

In 1982 the Ivory Coast reformed its penal code, stating that a voluntary sterilization procedure performed by a physician in good faith and with the person's consent would not be a criminal offense. At the same time, sterilizations that did not meet these requirements were made punishable by death (113). The language of the new law is ambiguous (581), and clinicians report that sterilizations are performed only for medical reasons. Previously sterilization and other contraceptive methods were illegal under a law persisting from colonial days.

Ministerial regulations. In 1982 the Ecuadorian Ministry of Health issued "Clinical Rules for the Promotion and Protection of Maternal and Child Health in Ambulatory Services" (57). These rules make clear that both vasectomy for men and tubal ligation for women can be performed for medical or social reasons. The consensus needed to formulate this document was almost 10 years in the making (480). In Iraq the President's office in 1980 cancelled a Health Ministry ban on voluntary sterilization (318). In the Philippines the Secretary of Justice ruled in 1973 that the criminal law on mutilation did not apply to voluntary sterilization (639). Recently issued Ministry of Health regulations in Honduras legalize voluntary sterilization and establish procedures for obtaining informed consent (241).

Codes of medical ethics. In 1981 the Senate of the Swiss Academy of Medical Sciences approved clear guidelines for voluntary sterilization. The code states that individuals "are entitled to decide freely about sterilization" (202). Previously the legality of voluntary sterilization had been unclear. In 1983 the French Medical Council revised its Code of Medical Ethics to permit a physician to make his or her own decision about performing a voluntary sterilization. Previously sterilization was permitted only on "very serious" medical grounds (312, 346).

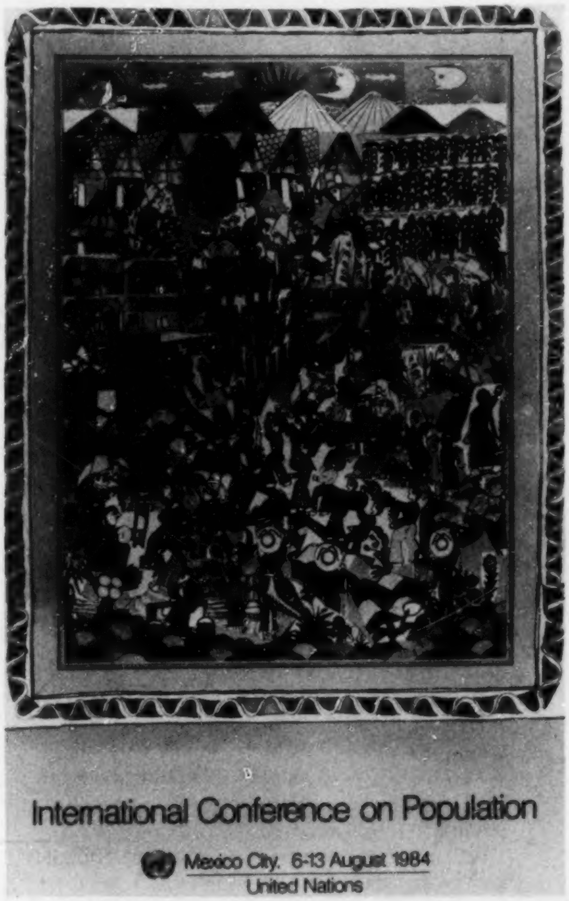
International resolutions. In 1975 a unanimous resolution of the Committee of Ministers of the Council of Europe called on member governments to take legislative and administrative measures to make voluntary sterilization available for family planning purposes (41). This is significant since some European countries previously had considered voluntary sterilization to be against public policy.

Court decisions. Courts in a number of countries have decided that voluntary sterilization does not constitute the crime of assault. In 1976 a West German court held that the contraceptive sterilization of a woman performed by a doctor was not illegal (256). In Italy a doctor who had been prosecuted in 1981 for assault for performing vasectomies, even though the penal code prohibiting voluntary sterilization had been repealed in 1978, was acquitted in 1982. The acquittal is being appealed (390).

Preventing Abuse and Avoiding Regret

Parallel to policies clarifying the legality of voluntary sterilization are policies designed to prevent abuse and avoid later regret. Governments have used some of the following mechanisms:

Ensuring informed consent. Most governments have set up procedures intended to ensure that the client is fully informed and that the procedure is being done with his or her voluntary, carefully considered consent. These pro-


International Conference on Population
Mexico City, 6-13 August 1984
United Nations

A montage of traditional Mexican art adorns a poster for the International Conference on Population, held in Mexico City. Delegates to the session agreed by consensus that "Family planning information, education and means should include all medically approved and appropriate methods of family planning...."

cedures usually involve providing the potential client with information or counseling and requiring his or her signature on a consent form (583). They may also entail a waiting period between the time consent is given and the procedure. The most important information for the client is that voluntary sterilization should be considered permanent.

Penalizing those who sterilize coercively. Under the criminal codes of almost all countries, to sterilize a person intentionally without his or her consent is a crime (582). For example, the 1983 Turkish law that legalized voluntary sterilization underscored this principle by establishing a penalty of two to five years of imprisonment for anyone who performs a sterilization procedure without the consent of the person involved (221).

Clarifying Legal Defense of Voluntary Sterilization

In the past it was not always certain whether or not criminal law prohibiting intentional infliction of bodily injury (also called assault, mutilation, mayhem, or acts of hurt) applied to voluntary sterilization. This uncertainty persists in many places. In some countries it may inhibit physicians from performing voluntary sterilization. In others voluntary sterilization for family planning is widely practiced nonetheless (611).

Where governments have not specifically clarified this issue, various legal principles can be cited to argue that criminal law on assault does not apply to voluntary sterilization:

- In countries with a common law tradition, a physician who performed the procedure in good faith with consent of the person sterilized would have a valid defense if charges were brought. Most common law criminal codes permit a good-faith defense. Additionally, in most common law criminal codes the consent of the "victim" relieves the supposed assailant of criminal liability. In keeping with this principle, many common law countries treat voluntary sterilization like all other surgical procedures. Ghana, Nigeria, Tanzania, and Zambia, for example, consider voluntary sterilization a surgical procedure that is completely legal when done in good faith by a physician for the intended benefit of the client and with that person's consent (526, 735).
- In some civil law countries consent was not recognized as a defense. Legal doctrine in some countries early in the century held that such consent was against good morals or against public policy and the interests of the pronatalist state. Thus consent was not considered to justify voluntary sterilization, in the same way that consent to be killed does not justify murder (583). Today, however, family planning is viewed not as an act against the state, but as an individual act of responsible planned parenthood (642, 710, 712, 744). As a result an individual can argue that he or she is able to consent freely to voluntary sterilization (583).
- Under a nearly universal principle of criminal law, an act can be considered illegal only where a provision of law specifically makes it criminal or can be construed to make it criminal. Thus, where there is no such provision, voluntary sterilization cannot be considered a criminal act.

Age and parity requirements. To make sure that a person is capable of making a decision about voluntary sterilization that will not be regretted later, most countries limit voluntary sterilization to people above a certain age who are mentally competent. Most European countries have set the minimum age at 25. In other countries consent for voluntary sterilization is treated like consent for other medical procedures, which can be legally given by anyone who has reached the age of majority (583). This is usually 18 or 21. Most developing countries require a minimum age of 30 or 35 (612). An exception is Singapore, which allows voluntary sterilization on request of those over the age of 21 (178, 179). India has set different age requirements for men and women—25 for men and 20 to 45 for women (612).

In some countries regulations also require that a person have a certain number of children before he or she may obtain voluntary sterilization. Such a requirement is intended to guard against later regret, but it has been criticized as arbitrary (466). In some countries requirements combine age with the number and sex of children. Egypt, for example, requires a minimum age of 35 and three children, one of whom must be male (612). In Bangladesh a couple must have two children and the youngest must be over one year old (567). In developed countries combined age and family size requirements were once commonly imposed by hospitals. They are now disappearing since they are seen as an infringement on informed individual choice. In several US states such rules have been forbidden (583).

Spousal authorization. In many countries a spouse's authorization for voluntary sterilization is required. Singapore abolished its spousal authorization requirement in 1974 (179). Ghana, South Korea, and China, among others, do not require spousal consent for any family planning services, including voluntary sterilization (612, 639). Pakistan requires spousal consent for female sterilization but not for male sterilization (612). A requirement of spousal authorization can be an obstacle to voluntary sterilization without achieving truly informed consent. In the US, spousal consent requirements are considered unconstitutional (261, 704).

COMPENSATION, INCENTIVES, AND DISINCENTIVES

Some 40 governments reinforce population or family planning policies, as they reinforce other national policies, by rewarding those who follow policies and by levying charges or penalties on those who do not (334, 381, 398, 444, 538, 702). The benefits are usually provided from national funds rather than by any external funding source. In some countries incentives are used to encourage higher fertility (379, 383). In family planning programs this type of reinforcement can take at least five different forms (see Table 8, p. E-132):

1. payments or bonuses to health personnel who provide family planning services,
2. compensation in cash or kind to acceptors of specific family planning methods,
3. long-term economic or social benefits for families under a specified size,
4. economic opportunities for communities or businesses that meet or exceed national goals, and
5. loss of benefits or else penalties for those who do not follow policies.

In drafting such laws or regulations to reinforce public policy, policy-makers need to consider the ethical implications of incentives and the appropriate balance between individual rights and national goals. Also important are the need for public understanding of the rationale behind any new benefits or penalties and the administrative capacity of government units to implement these programs fairly and efficiently.

Payments to Providers

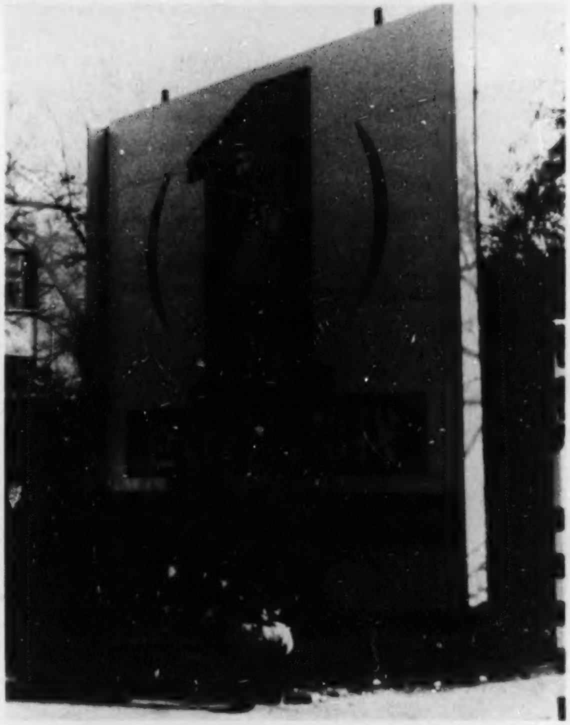
Payments to family planning providers or recruiters are a feature of some national family planning programs. Many Asian programs provide some payments, in addition to salaries, to physicians, nurses, paramedical staff, or recruiters who provide family planning services (398, 417, 484, 510, 612). Some other countries with extensive family planning programs, such as Egypt, Mauritius, and Tunisia, also provide extra compensation (510, 612). In most other countries where organized family planning services are available, payment to providers is on the basis of time spent or procedures performed. This is comparable to payment for other medical and surgical services.

Payments to providers, where they are used, range from a set fee for each voluntary sterilization or IUD insertion, as in Tunisia and Taiwan, to higher monthly stipends for family planning workers, as in Singapore and some Indian states (374, 510). In Nepal it has been proposed that doctors performing a specified number of sterilizations receive priority for further education (503). In Bangladesh (352), Mauritius (612), and Tunisia (612), among others, contraceptive distributors also are compensated, sometimes on a commission basis.

Compensation to providers is not necessarily designed as an incentive, but evaluations in Taiwan (374) and Sri Lanka (576) suggest that an extra fee did increase the number of sterilizations performed. In some cases, however, extra payments for family planning workers and especially for recruiters created resentment among other workers and the population, and they were dropped. This occurred in Pakistan in the 1960s (374, 402, 417) and in Indonesia in the mid-1970s (421). Some family planning methods such as voluntary sterilization require a higher level of provider's skill than others. This may justify higher payments for these methods. A major concern, however, is whether payments specifically for permanent methods may lead to pressure on users who would really prefer reversible methods (351, 657, 669).

Compensation to Acceptors

Policies or regulations that authorize a direct, one-time payment to individual acceptors for using a specific method are almost entirely confined to Asia and to voluntary sterilization. In most cases, such payments are designed to cover the loss of wages for several working days, transportation, and other costs incidental to surgery (334, 380). Cash payments are given in Bangladesh, a number of Indian states, South Korea, and Sri Lanka (398, 510). The amount is usually the equivalent of one to two weeks' pay (383, 444). In-kind benefits, such as extra food and a clean sari for women or longhi for men to wear after surgery, also are provided in Bangladesh (352, 398, 643). In India, Bangladesh, and Sri Lanka compensation payments were increased during 1983 (567, 690). In India and several other countries payment is authorized for accepting an IUD. The amounts are much smaller than those for sterilization (334, 444, 510, 561). Another type of benefit, paid leave for sterilization, is common in many Asian countries for government workers and others subject to government regulation (334).



A Chinese couple rests with their infant under a poster that encourages couples to have only one child. The poster reads: "Papa, Mama, and me." Over 14 million Chinese couples have pledged to have only one child. These children will receive priority in health care and school admissions. Their parents are eligible for stipends and better housing, jobs, and pensions.

Several reviews of recent experience have concluded that in the short run payments to acceptors increase the number of sterilizations (334, 380, 444, 690). In part this may be because a small, one-time payment stimulates people who are already thinking about sterilization to make a definite decision (383). In the long run, however, as in the case of payments to providers, excessive promotion of any one method, rather than emphasis on an informed individual choice, may attract people who are not completely convinced. These men and women are the ones most likely to discontinue the method or regret the decision later (461).

Long-Term Benefits

In some countries policy-makers have gone beyond one-time payments to family planning users. They are experimenting with a wide array of benefits for families that follow national fertility policies. The objective is to create strong motivation to limit family size by providing important long-term advantages and specifically by encouraging governments, employers, or communities to provide some of the support that large families provided in the past.

This approach is most extensive in China and in the smaller states of East Asia where, in general, governments tend to exercise strong, central authority. In China, where the government is promoting the goal of the one-child family, benefits are the largest and most varied. Children in one-child families receive priority in health care and in admission to middle-level schools. Their parents are eligible for better housing, better jobs, an additional monthly stipend, more land, and, eventually, higher pensions (355, 356). In Singapore also, the first three children in a family have priority for admission to schools (357, 588). In South Korea 2-child families receive preference for medical care

Table 8. Current Government Measures to Reinforce Family Planning Policies, Selected Countries

	Extra Payment to Providers and/or Motivators		Compensation to Acceptors				Long-Term Benefits					Maximum Number of Children Covered by:		
Region & Country (Ref. No.)	VS	Other Contraception	VS	Contraceptives	Paid Leave for VS/IUD Insertion	Community or Group Incentives	School Priority	Housing Priority	Loans, Pensions, Savings	Medical[a]	Employment[b]	Maternity Leave	Child Allowance	Tax Deductions
AFRICA														
Botswana (612)		X												
Ghana (398)												3[c]	3[c]	
Kenya (398)														4
Mauritius (612)		X												
Tanzania (203, 398, 415)												4[d]	4	0
ASIA & PACIFIC														
Bangladesh (301, 334, 380, 398, 443)	X	X	X	X		X								
China[e] (355, 356, 398, 399)	X				X		X	X	X	X	X			
Hong Kong (398)												3		[f]
India[g] (398, 433, 573, 612, 632)	X	X	X	X	X[c]	X		X	X	X	X[c]			
Indonesia (96, 380, 381, 510)		X				X			X				7[h]	
Malaysia (398)												3		[i]5
Philippines (381)												4		4
Singapore (319, 398, 586)			X		X[c]		X					2		3
South Korea[j] (120, 398, 433, 537, 544)	X	X	X		X			X	X	X		2	2[c]	2
Sri Lanka (120, 398, 433, 630)	X		X		X[c]								0	0
Taiwan (399, 510)	X	X												2
Thailand (204, 207, 208, 209, 398, 462, 510)	X												3	3
Viet Nam (307, 450, 630)					X									
LATIN AMERICA & CARIBBEAN														
Grenada (398, 399)												3		2[k]
MIDDLE EAST & NORTH AFRICA														
Egypt (334, 510, 634)		X			X									3
Morocco (398)													4	
Tunisia (217, 510, 612)	X	X											[l]	

VS = voluntary sterilization

[a] Generally, free or subsidized medical care for one or two children
[b] Salary increases and/or priority for promotion
[c] Applies to government employees only
[d] Leave granted no more than once every 3 years
[e] Also, penalties can include loss of promotion rights, deduction from work points or wages, fines equaling annual per capita collective income
[f] Progressive decrease up to 9
[g] Central or state governments
[h] Including husband and wife/wives
[i] Also, progressive increase in delivery fee for each child
[j] Also, extra residents' tax on families with 3 or more children
[k] Decreases after 2
[l] Progressive decrease after first child

and urban housing, and older people with only two children receive higher pensions (417, 433).

There have been other approaches. In India in the early 1970s a no-birth bonus scheme was devised for workers on the tea estates. A payment was made into an account for each month of nonpregnancy. A woman could withdraw the money at age 45. The number of voluntary sterilizations increased markedly, and birthrates fell. The program proved difficult to administer, however, as well as costly (547, 548). Various Indian states have offered low-interest loans, bonds, and special bank deposits, as well as preferential education and housing and higher pay, for families who either have only two children or become sterilized after the third child (334). Recent policy in South Korea calls for free primary medical treatment for children under age five of couples who have chosen sterilization before the birth of a third child. Among the poor, those who choose voluntary sterilization are to receive priority for loans (537).

These approaches have been used to publicize and reinforce national policy goals. The effectiveness and acceptability of these incentives depend on the importance of the benefit and on the ability of the provider to deliver it fairly. Long-term incentives may also depend on people's confidence in government promises and on inflation, since high inflation rates would reduce the value of any future payments.

Community or Group Incentives

Another approach has been the provision of incentives to a community or employer, which then bears responsibility either for sharing them equitably or for administering them to individuals. Community incentives are intended to create a sense of social responsibility within the group to practice family planning. They reduce the administrative problems that central governments face in reaching individuals whose lives are not directly affected by the government. Programs that rely on peer pressure without appropriate education or emphasis on benefits to individuals are likely to produce opposition, however.

In both China and Indonesia local government units have been enlisted in the family planning program. They are given goals and offered benefits or prizes for the best records (380). In China the local employment unit bears most of the responsibility for making the promised payments to one-child families (356). In India several states, including Uttar Pradesh, Madya Pradesh, Haryana, and Gujarat, have been offering awards to village councils ranging from cash to a bag of cement for each vasectomy (334, 398). In 1983 the Indian central government announced an expanded program of benefits to states, community groups, and especially manufacturers and labor organizations to reward family planning performance (561). Also, in 1983 the Bangladesh government announced that it would begin giving cash awards to districts that achieved family planning goals (301).

Throughout Asia governments encourage private employers to provide incentives to employees who become sterilized or who follow small-family norms (433). In South Korea businesses are offered specific tax exemptions for this purpose (417, 433). In the Philippines large employers often provide a variety of benefits to those accepting sterilization (381).

In Thailand private-sector programs organized by Mechai Viravaidya pioneered income-generating incentives for rural communities. These include sharing use of farm animals, assistance in animal breeding, low-interest loans, and access to direct marketing services for community products. These are available free or at a discount to family planning users (380, 381, 398, 462). Generally, rural areas have the highest fertility, but it is difficult to develop organized incentives that will reach rural populations effectively.

Disincentives

The People's Republic of China and Singapore are the only governments that have imposed strong disincentives on large families. In China, for each child after the second, a monthly charge is levied, the child's opportunities for education and jobs may be threatened, and previous benefits must be paid back (356). In Singapore, delivery charges increase with each child and, as noted, later children have lower priority for admission to schools (588). Elsewhere disincentives usually involve not a penalty, but rather a restriction on government-funded benefits that would otherwise be available.

The most common restriction on benefits—which has been enacted in over a dozen Asian states—is to limit the number of tax deductions for children, usually to the first two or three children (398). Tax deductions for children have been eliminated in Nepal, Sri Lanka, and Tanzania (398). In Indonesia the number of deductions was reduced from 10 to 7 in 1974 (97). Also, at least six countries that pay child allowances limit them to a certain number of children (398). A few countries limit coverage of costs for hospital maternity services (398). At least eight countries, including Ghana, Singapore, South Korea, and Thailand, limit paid maternity leave to a certain number of births or, as in Tanzania, to certain birth intervals (398, 588). These changes may have some impact among urban or salaried workers, but in rural areas few people pay national taxes or go to hospitals.

Issues Raised

Incentive and disincentive programs raise important ethical, administrative, and political questions. Ethically, some consider incentives coercive, reducing the freedom of choice that is important in family planning (335, 351, 657, 669). Others argue in reply that incentives which reduce any extra costs of family planning can actually increase people's choices, particularly the choices available to poorer people (332, 338, 709). Also, in some countries it is argued that the societal need to control population growth may have to take precedence over individual preferences (497, 564). The potential tension between the right of individuals to choose the size of their families and the interest of governments to limit population growth, thereby protecting the welfare of current and future generations, forms the crux of the ethical dilemma.

Recognizing potential problems and ethical issues, some donor governments and international agencies have prepared specific guidelines for any payments related to voluntary sterilization. No funds of the US Agency for International Development (US AID) can be used to pay potential acceptors of sterilization to induce their acceptance of the procedure. Further, the fee or patient cost structure applied to voluntary sterilization should be established in such a way that no financial incentive is created for sterilization over another method. The guidelines note that "Recompense to acceptors for legitimate extra expenses . . . such as transportation, food during confinement, medicines, surgically related garments and dressings and the value of lost work are not considered incentives and are eligible for AID support" (647). Health providers and family planning workers referring clients may receive compensation at a level "reasonable relative to other medical and contraceptive services provided" (647). The World Federation of Health Agencies for the Advancement of Voluntary Surgical Contraception has an official policy stating that, where incentives or disincentives are offered, they should be for limiting family size in general and not for voluntary sterilization only. The policy statement discourages the use of immediate financial incentives for acceptors and notes the potential for abuse with incentives for service providers and motivators (673). In Colombia 1984 regulations prohibit the national health system and its personnel from offering incentives to choose one method of family planning over another (240).

Administratively, incentive programs present pitfalls. Unless implemented without corruption or abuse, they may discredit rather than strengthen a family planning program. Some require the ability to meet long-term financial commitments. If successful, they could be extremely expensive. Incentives or disincentives for government officials or salaried workers based on their fertility behavior or contraceptive use are more easily administered than payments to rural residents or others outside the organized sector of the economy. Also, these workers are people who can set an example for others. Village incentive programs call for close supervision to be sure that performance, rather than the traditional power structure, is rewarded.

Politically, incentives and disincentives have been most acceptable and most successful where public opinion supports the policy goals. In Singapore, for example, where strong incentives and disincentives reinforce already low fertility, many people say that they would have small families anyway (588). By contrast, in Pakistan (and in East Pakistan, now Bangladesh, in the late 1960s), where fertility was high, incentive payments were a source of friction and helped fuel political opposition to the program (362).

While incentives and disincentives are used in some countries to reinforce national goals, they are not considered a substitute for good, readily available family planning services or for extensive public education on the benefits of family planning.

LEGAL STATUS OF WOMEN AND FERTILITY

In addition to developing national population policies and programs, governments influence fertility indirectly by stimulating people to want smaller families. Historically, family size has declined as standards of living have improved (370, 483, 491, 549). Specific social and economic factors that have been associated with lower fertility are:

- improved health and, particularly, lower infant mortality (542, 601);
- more education (350, 364, 411, 420);
- higher income or more equal distribution of income (336, 463, 545, 546, 563); and
- increased urbanization (410).

Table 9. Countries With New Constitutional Provisions and Laws Promoting Equality of the Sexes, 1974–1982

Region & Country	Ref. No.	Year Adopted
AFRICA		
Algeria	4	1976
Cape Verde	27	1980
Nigeria	142	1979
Rwanda	171	1978
Upper Volta	231	1977
Zaire	236	1978
ASIA & PACIFIC		
China	36	1978
Pakistan	429	1976
Sri Lanka	190	1978
Thailand	205	1978
LATIN AMERICA & CARIBBEAN		
Chile	28	1976
Cuba	45	1976
Ecuador	54	1977
Guyana	85	1980
Mexico	131	1974
Nicaragua	631	1979
Peru	150	1979
MIDDLE EAST & NORTH AFRICA		
Turkey	218	1982
DEVELOPED COUNTRIES		
Albania	131	1976
Belgium	17	1978
Greece	82	1975
Norway	145	1978
USSR	223	1977
Yugoslavia	533	1974

In addition to these factors, improvements in the status of women are crucial, giving women access to the fruits of development as well as influencing fertility (712, 743). Such improvements often require specific changes in laws and regulations and conscientious enforcement.

Legal Routes to Equality

Broad guarantees of equal rights for women have been provided in national constitutions and in international human rights conventions. Since 1974 at least 24 countries have adopted constitutional provisions prohibiting sex discrimination or guaranteeing equality of the sexes (see Table 9). International human rights conventions help to create a norm of sexual equality and are considered binding on countries that ratify the conventions (368, 487, 572). Some 55 countries have ratified the UN Convention on the Elimination of All Forms of Discrimination Against Women (695). Other conventions also contain provisions important for women's rights. For instance, the African Charter on Human and People's Rights, adopted in 1981, states, "Every individual will be equal before the law" (408). The recommendations of the International Conference on Population in 1984 highlighted the need to improve the status of women (see box, p. E-139).

More specific initiatives that governments have taken in the last decade fall into four categories:

- employment and labor practices,
- education,
- political and civil rights,
- marriage and the family.

Employment

Reforms in employment legislation have been primarily in two categories—(1) legislation guaranteeing equal job opportunities and (2) legislation calling for equal pay for men and women performing the same work. Many laws combine these two elements.

During the past decade at least two dozen countries, ranging from India to Gabon, have passed legislation (including constitutional reform) calling for equal job opportunities and prohibiting sex discrimination in employment (see Table 10). For example, the Indian law of 1976 prohibits discrimination in job recruiting. It exempts jobs that, under other laws, women are specifically prohibited from holding, however (93). In Thailand a 1978 constitutional provision grants equal rights to employment as part of a broad measure equalizing the rights of men and women (205).

Table 10. Changes in Employment Laws Affecting the Status of Women, Selected Countries, 1974–1984

Region & Country	Ref. No.	Year	Type of Change*	Action Taken
AFRICA				
Gabon	77	1978	S	Labor Code guarantees equal pay for both sexes.
Nigeria	143	1979	S	Provides for equal pay for equal work.
Rwanda	171	1978	C	Provides for all citizens to choose their work freely and enjoy fair and satisfactory conditions of work.
Upper Volta	231	1977	C	Guarantees equal employment opportunities.
ASIA & PACIFIC				
China	738	1982	C	Provides equal rights and equal pay for equal work.
India	93	1975	S	Provides equal pay for workers regardless of sex and prohibits sex discrimination in employment.
Philippines	533	1974	S	Labor code provides equal pay for equal work.
Thailand	205	1978	C	Guarantees equal employment opportunities.
MIDDLE EAST & NORTH AFRICA				
Algeria	4	1976	C	Provides for equal pay for equal work.
Democratic Yemen	48	1979	S	Protects women from employment in industrial activities that are difficult and harmful to health.
Israel	107	1982	S	Prohibits sex discrimination in hiring and job advertising.
LATIN AMERICA & CARIBBEAN				
Argentina	533	1976	S	Amendment to Law of Labour Contracts provides for equality of employment.
Jamaica	533	1975	S	Employment act provides for equal pay for men and women.
Mexico	533	1975	C	Amendment to Labour Act provides for equality in employment.
Peru	153	1979	C	Guarantees equal pay for equal work.
DEVELOPED COUNTRIES				
Austria	10	1979	S	Provides for equal pay for men and women in most jobs.
Belgium	17	1978	C	Prohibits sex discrimination in employment except when sex is a genuine occupational factor.
Canada	738	1982	C	Provides for equal treatment before the law without discrimination based on sex, as well as race, religion, or other factors.
Europe	39	1976	S	Council of Europe directives prohibit discrimination on grounds of sex.
	40	1978	S	Member states required to bring laws into compliance with above directive.
Denmark	533	1976	S	Provides for equal pay for equal work.
France	533	1975	S	Prohibits sex discrimination in employment.
Greece	82	1975	C	Provides for equality between men and women, including equal pay for work of equal value.
Ireland	104	1977	S	Equality of Employment Act outlaws discrimination on the basis of sex in a wide range of occupations.
Italy	108	1977	S	Provides for equal employment opportunities.
Netherlands	533	1975	S	Provides for equal pay for equal work.
Norway	145	1978	S	Prohibits sex discrimination, particularly in relation to employment, pay, and training.
Portugal	169	1979	S	Prohibits sex discrimination in employment.
Spain	183	1976	S	Provides for equal pay for equal work; however, women may be prohibited from certain dangerous and unhealthy jobs.
Sweden	194	1979	S	Prohibits discrimination in employment. Employer must take active measures to promote equality at work.
Switzerland	201	1981	C	Amendment provides that men and women are equal before the law and should receive equal pay for equal work.
United Kingdom	533	1975	S	Prohibits sex discrimination in employment.

*C = constitutional; S = statutory or regulatory.

Education lowers fertility by offering women opportunities in addition to childbearing. While many countries guarantee education for all, by custom more boys than girls go to school. In Africa girls account for 41 percent of school enrollment at the primary level and 38 percent of secondary level enrollment. (US AID)

A number of countries have provisions requiring equal pay for equal work. For example, Peru in 1977 repealed a law permitting a lower minimum wage for women than men (551). Algeria's 1976 constitution calls for equal pay for equal work (4), as does a Spanish statute of 1976 (183). Legally enforceable guarantees of equal pay also have been achieved without government action. For example, in Kenya the metalworkers' union and an employer agreed to a contract clause requiring equal pay for equal work (633). The European Economic Community has taken the concept of equal pay for equal work a step further by applying it not only to the same work, but also to work of equal value (580). Nonetheless, in most countries hiring and pay discrimination by sex are widespread and customary, and uniform enforcement of laws is extremely difficult.

Education

In addition to employment law, legislation has been enacted to increase women's access to other social benefits such as education. The UN Convention on the Elimination of All Forms of Discrimination Against Women emphasizes the importance of educational opportunity by declaring that women should have equal rights with men in education at all levels, including access to educational institutions of all types, choice of curricula, and access to scholarships and other financial support (695). Few laws explicitly restrict girls' access to education. Traditionally, however, girls are often kept out of school to help at home (see box, p. E-138).

A number of countries have recently adopted laws guaranteeing or requiring education for all, which in theory assure education for girls. New constitutional provisions and laws in seven countries—Albania (2), Ecuador (56), Nigeria (142), Peru (152), Rwanda (171), Turkey (220), and Yugoslavia (632)—call for free and compulsory primary education. A 1981 Barbados law requires compulsory attendance of all children between the ages of 5 and 16 (16), and the 1977 constitution of the USSR calls for compulsory secondary as well as primary education (224). Other countries have reduced or abolished school fees. For example, a 1979 presidential directive in Kenya abolished elementary school fees (631), and a 1979 law in Panama provides that textbooks, exercise books, and school uniforms be supplied free of charge (148). Many other countries have older laws requiring or guaranteeing education for all children.

Girls' school attendance varies greatly around the world. In Asia, the countries of Burma, Indonesia, South Korea, Malaysia, the Philippines, Singapore, Sri Lanka, and Thailand are approaching universal school enrollment. In Bangladesh, Nepal, and Pakistan, however, less than half of girls of primary school age attend school (628). Measured as a percentage of school enrollment, girls in Nepal account for only 13 percent at the primary school level compared with 49 percent in Thailand (628).

In Latin America and the Caribbean the situation is considerably better and more uniform. Primary and secondary school enrollments are almost equal for males and females (613). Venezuela is an unusual case. Many more girls than boys—69 percent compared with 39 percent—are attending secondary school, and in the universities there are almost equal proportions of women and men (426).

Political and Civil Rights

In the last decade a number of governments have moved to assure women political and civil rights equal to those of men. These rights include:

- the right to vote,
- the right to hold elected office, and
- the right to own property and enter into contracts.

Until recently women could not vote in many parts of the world. Now that situation has changed. Most recently, Spain granted women the right to vote in 1978, as did Jordan in 1974 and Switzerland in 1970. Currently only Saudi Arabia and North Yemen prevent women from voting (521).

Another important right of citizenship is the ability to hold elected office. In some countries women are prohibited from doing so. In many others, as in Togo, few women become candidates because "custom dictates that women may vote but only men may administer" (376). In Egypt, Bangladesh, Ghana, and Pakistan, the proportion of women in the national legislature or parliament has been raised by setting aside a specified number of positions for women (60, 533). A 1979 law in Egypt, for example, set aside 30 seats for women in the People's Assembly and called for 10 to 20 percent of the seats in local councils to be reserved for women (60).

In some countries a woman can hold property or negotiate contracts only in the name of her father or husband. Thus she must have male authorization for such actions as opening her own bank account or obtaining credit in her own name. The situation is changing. For example, Togo changed its law in 1980 to provide married women full legal capacity (212). Portugal changed its law in 1977 to enable a married woman to administer, transfer, sell, or mortgage her own property without her husband's consent (167). Vestiges of discriminatory practice remain, however. For example, the Peruvian Commercial Code still prohibits a wife from carrying on commercial or professional activity without her husband's approval even though a constitutional provision promises equality (551).

Equality Within Marriage and Family

A number of governments have recently taken initiatives to further women's rights within marriage and the family. These steps have been in three areas: (1) family formation, (2) rights and duties during the marriage, and (3) divorce (see Table 11).

Laws affecting family formation. The laws affecting family formation are varied and complex. Measures taken to further women's rights that at the same time may influence fertility include:

- raising the minimum age at marriage, and
- reforming polygyny.

Laws raising the minimum age at marriage seek to stop parents from marrying off children—and particularly daughters—at an early age, often without their consent. Over the past two decades at least 50 countries have raised the legal age at marriage (418), although most of these changes were made in the 1960s and early 1970s. In 1978 India raised the minimum age at marriage from 18 to 21 for men and from 15 to 18 for women (90). In 1980 Togo set a minimum marriage age of 20 for men and 17 for women (212). Raising the minimum age at marriage is often an important measure to reduce fertility since women who marry later have fewer children (see **Population Reports**, *Age at Marriage and Fertility*, M-4, November 1979).

Raising the minimum age at marriage can be a sensitive question, but, where legislative action is not feasible, compromise through administrative measures may be possible. For example, in Indonesia in the mid-1970s, religious opposition prevented legislation increasing the legal age at marriage. Instead, changes in administrative procedure were made. Marriages by men under age 19 and women under age 16 now require the approval of both parties in a formal proceeding before a Muslim court. Thus, without an actual change in the legal minimum age at marriage, marriage by young people was made more difficult, the religious groups were satisfied with the expansion of their authority, and reform groups that wanted a higher age at marriage could support the norms set forth in the new procedures (455).

In the last 10 years a number of countries have set minimum legal ages at marriage that are the same for both men and women. They include Barbados, Hong Kong, Iraq,

Table 11. Changes in Family Law Affecting the Status of Women, Selected Countries, 1974–1984

Region & Country	Ref. No.	Year	Type of Change*	Action Taken
AFRICA				
Angola	6	1978	S	Permits divorce by mutual agreement.
Togo	212	1980	S	Abolishes unilateral divorce by repudiation.
Tunisia	215	1981	S	Details how compensation shall be awarded to wife when divorce is based on mutual agreement.
ASIA & PACIFIC				
India	95	1977	S	Hindu Marriage Act broadens grounds for divorce; one ground is joint petition after one-year separation.
Indonesia	98	1974	S	Limits polygyny, gives some access to divorce.
Korea, Republic of	121	1977	S	Enables women to inherit on equal basis with men.
Malaysia	127	1976	S	Act applicable to non-Muslims forbids polygyny, grants equal rights to both spouses, allows divorce by mutual consent.
	128	1980	S	Allows divorce on proof of irretrievable breakdown of marriage.
Philippines	161	1977	S	Establishes grounds for divorce, including Muslim repudiation.
LATIN AMERICA & CARIBBEAN				
Brazil	20	1977	C	Permits divorce after 3-year judicially recognized separation.
Cuba	42	1975	S	Wives given equal rights with husbands.
	43	1976	C	Equal rights established.
Nicaragua	482	1981	S	Eliminates *patria potestas* and gives both spouses equal rights.
Trinidad & Tobago	243, 377	1976	S	Married women granted right to acquire, hold, and dispose of property.
DEVELOPED COUNTRIES				
Austria	11	1978	S	Permits divorce by mutual agreement after separation.
Italy	109	1975	S	Family law reform gives spouses equal rights.
Luxembourg	124	1978	S	Permits divorce if irremediable breakdown of marriage occurs and parties are separated more than 3 years.
Portugal	165	1976	C	Divorce permitted.
	168	1976	S	Mutual consent made grounds for divorce.
	167	1977	S	States that marriage is based on equality between spouses; permits wife to use her own name, choose a profession without her husband's consent, and retain more of her own property.
Spain	186	1978	C	Entitles men and women to enter into marriage on equal basis.
	188	1981	S	Broadens grounds for divorce; one ground is separation for at least one year after petition is presented.

*C = constitutional; S = statutory or regulatory.

Malaysia, Tonga, and a number of European countries (418). In Thailand a 1978 constitutional provision mandates equal minimum ages at marriage, and the age is set at 17 (205). Among 111 countries with laws on age at marriage, 28 have set the same age for men and women, while 75 have set a lower minimum age for women than for men. The remainder have different minimums for different groups or in different areas (418).

The impact of laws on age at marriage can be diluted by lack of enforcement and by legal exceptions. India, for example, has found it difficult to enforce the law because the marriage registration system is limited. Sri Lankans of Islamic faith are exempt from the law and may ignore the minimum age requirements of 16 for women and 18 for men (446). In Indonesia, among other countries, children may marry before reaching the legal minimum age if they have parental consent (571).

Women's Status: A Paradox

A visitor in India reports a conversation concerning women's work and education:

Walking along, I noticed that women seemed to do the most work. I would see them at dawn high in the trees, lopping off branches to feed the goats and cows, chopping and carrying the wood and fodder, hauling the drinking water, cooking the food, taking care of the house and children, washing dishes and clothes, doing virtually all the farm work. The women broke soil with picks, planted, weeded, thinned, harvested, threshed and ground the grain. They laughed and sang while they worked and did not hesitate to stop and have animated conversations with us as we walked by them.

Surprised at the incongruity between these women's work and their demeanor, I asked a local district commissioner, "Why do your women work so hard and yet seem so happy?"

"Women have a high status in our society," he told me, "because they do the work and the households couldn't survive without them. They are essential and they know it."

"Don't they mind that the men are mostly sitting around drinking tea, smoking and playing cards?"

"No," he said, "the men do the heaviest work: the plowing, the heaviest load-carrying. Of course, the men take care of the money. Women can't do that."

"Why?"

"Women can't handle money because they don't go to school."

"Why don't girls go to school?" I asked. Most of the schools we had walked by had only one or two girl students amidst the dozens of boys.

"There's too much work for them to do. There's no time for girls to go to school."

Source: Blum (341)

Polygyny—a man's right to take another wife but not vice versa—can lower the status of women and affect their economic welfare (423). Where religious teachings allow polygyny, however, as in Islamic countries, abolishing the practice is difficult and controversial because it may be thought antireligious (344). Among Islamic countries, Tunisia has prohibited polygyny (216). In 1976 Malaysia abolished polygyny, but only for non-Muslims (127).

An alternative to a ban on polygyny is moderate change. For example, 1980 amendments to Egypt's Personal Status Law require the husband to inform his current wife of his intention to marry another woman and to inform the future wife of his current marital status. Since secrecy has facilitated polygyny, this measure may discourage men from taking additional wives (423). The first wife is entitled to a court divorce and possible monetary compensation within a year if she finds out that her husband has married again without informing her (423). The 1974 Indonesian marriage law goes further, requiring both the consent of the current wife or wives and court approval of a subsequent marriage. Also, a husband may be fined if he does not treat all wives fairly (571).

Rights and duties during marriage. Governments have used a number of legal tools to equalize civil rights and duties during marriage and to guarantee married women the right to hold and inherit property.

Under both civil and common law principles, the husband used to have nearly complete authority over his wife, any property she might bring to the marriage, and family resources (419, 525). Similar principles are found in other legal systems as well (558). In overall reforms of family law codes, many countries have replaced this concept with the principle of equal rights and duties within marriage. For example, Spain (188) and Nicaragua in 1981 (482) and Cuba in 1975 (45) replaced the civil law principle of *patria potestas*, or "head of the family," by the principle of equal rights and duties in family decision-making. Countries also have specifically established the legal right of the wife to work and to conduct her own affairs (518).

The common law doctrine of coverture, which placed the married woman under her husband's protection and entitled him to possession of all her personal property, including inheritance, was abandoned in England as far back as 1882 (419), but the change did not necessarily apply to British colonies, and after independence the old doctrine persisted. Thus further legislation has been necessary. For example, the 1976 Trinidad and Tobago Married Women's Property Ordinance makes clear that "a married woman is capable of acquiring, holding, and disposing of a property" (377).

Some countries have passed laws to give women equal rights to inheritance. For example, South Korea in 1977 adopted a law allowing women in a family to inherit on an equal basis with men. Previously a woman was allowed to inherit only one-half as much as a man (121). Generally, however, the inheritance rights of women, whether they are single or married, remain inferior to those of men (365). For example, in Jamaica a husband can completely disinherit his wife. Furthermore, there is no provision for common law wives to inherit from their common law husbands or for illegitimate children to inherit from their natural fathers (671). Trinidad and Tobago remedied a similar situation with a law passed in 1981 (243, 377)

Even where laws seem to require equal inheritance rights, enforcement can be hindered by exceptions, competing laws, or customary or religious law. For example, although the Kenyan constitution bars any law that is discriminatory either in itself or in its effects, it exempts any law concerning inheritance (478).

Divorce. Many countries have modified divorce laws to give women more rights, but most countries are still far from providing equal rights to divorce, child custody, and alimony. One trend is toward permitting divorce by mutual consent based upon irreconcilable differences between husband and wife. This means that specific grounds of fault attributable to one party, such as adultery, do not have to be proved. Divorce based on irreconcilable differences, usually after a specified period of separation, has been legalized in countries representing most legal systems. They include Brazil (20), China (37), France (252, 253),

Improvements in Status of Women Stressed at 1984 Mexico City Conference

On the status of women, the International Conference on Population created a new section and additional recommendations, greatly strengthened over previous drafts:

In view of the slow progress made since 1974 in the achievement of equality for women, the broadening of the role and the improvement of the status of women remain important goals that should be pursued as ends in themselves. The achievement of genuine equality with respect to opportunities, responsibilities and rights would guarantee that women could participate fully with men in all aspects of decision-making regarding population and development issues that affect their families, communities and countries.

The ability of women to control their own fertility forms an important basis for the enjoyment of other rights; likewise, the assurance of socio-economic opportunities on an equal basis with men and the provision of the necessary services and facilities enable women to take greater responsibility for their reproductive lives. The following recommendations take into account the need for actions to ensure that women can effectively exercise rights equal to those of men in all spheres of economic, social, cultural and political life, and in particular those rights which pertain most directly to population concerns.

Recommendation 5

Governments are strongly urged to integrate women fully into all phases of the development process, including planning, policy and decision-making. Governments should pursue more aggressively action programmes aimed at improving and protecting the legal rights and status of women through efforts to identify and to remove institutional and cultural barriers to women's education, training, employment and access to health care. In addition, Governments should provide remedial measures, including mass education programmes, to assist women in attaining equality with men in the social, political and economic life of their countries. The promotion of community support and the collaboration, at the request of Governments, of non-governmental organizations, particularly women's organizations, in expediting these efforts should be given paramount importance.

Recommendation 6

Governments should ensure that women are free to participate in the labour force and are neither restricted from, nor forced to participate in, the labour force for reasons of demographic policy or cultural tradition. Further, the biological role of women in the reproductive process should in no way be used as a reason for limiting women's right to work. Governments should take the initiative in removing any existing barriers to the realization of that right and should create opportunities and conditions such that activities outside the home can be combined with child-rearing and household activities.

Recommendation 7

Governments should provide women, through education, training and employment, with opportunities for personal fulfillment in familial and non-familial roles, as well as for full participation in economic, social and cultural life, while continuing to give due support to their important social role as mothers. To this end, in those countries where child-bearing occurs when the mother is too young, Government policies should encourage delay in the commencement of child-bearing.

Recommendation 8

Governments should make efforts to raise the age of entry into marriage in countries in which this age at marriage is still quite low.

Recommendation 9

Governments should promote and encourage, through information, education and communication, as well as through employment legislation and institutional support, where appropriate, the active involvement of men in all areas of family responsibility, including family planning, child-rearing and housework, so that family responsibilities can be fully shared by both partners.

Recommendation 10

All Governments which have not already done so are strongly urged to sign and ratify or accede to the Convention on the Elimination of All Forms of Discrimination Against Women.

Recommendation 21

Governments are strongly urged to take all necessary measures, including, whenever they consider it useful, utilizing the services of non-governmental organizations, to raise the level of education attained by women as an end in itself and because of its close link to child survival and spacing. In countries where there are still many illiterate women, a supplementary effort should be made to extend mass education programmes.

India (95), Malaysia (128), Togo (212), West Germany (81), and almost all US states (700).

Under Islamic law marriage can be dissolved in three ways: repudiation by the husband (*talaq*), divorce by mutual consent (*khul*), and judicial separation (*tafriq*). Many Islamic countries permit only the first method. Others, including Egypt and Bangladesh, permit a combination of some or all (434, 623). In reforming these laws, Tunisia now allows repudiation by either the wife or the husband and then only within a court. The judge can require either party to pay damages to the other (215).

Women and Development

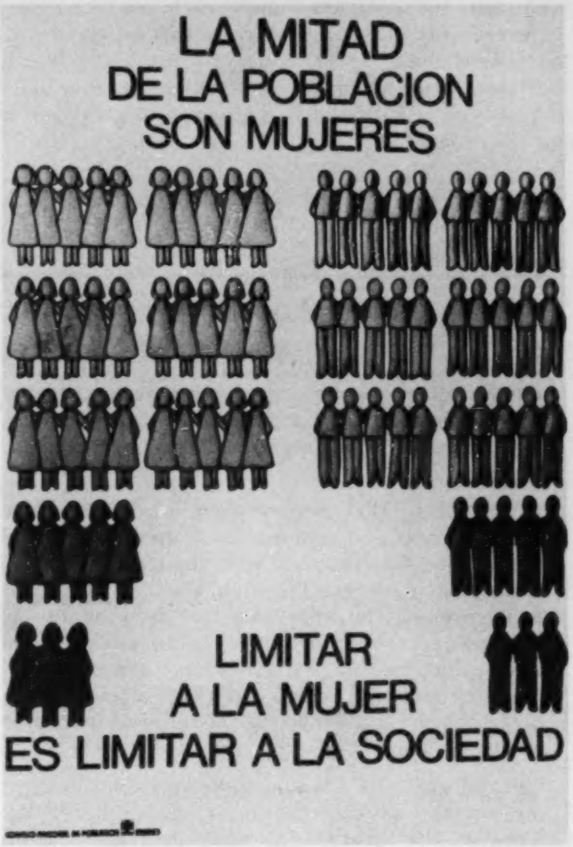
Despite much legal change in the direction of sexual equality, there remains a wide gap between equality in law and equality in fact. This is partly because social custom, tradition, and stereotyping portray women mainly in childbearing or domestic roles. A Sri Lankan lawyer has observed:

> In many ways, the issues of women's rights have accentuated the constant tension between tradition and modernity. Women have been classically regarded as the bearers of tradition from one generation to another. The transformation of their role in society is seen as an erosion of the foundations of traditional cultures. When the alternative to tradition is westernization, there is an in-build cultural prejudice which is often the justification of the denial of equal rights for women. (371)

Thus, even where favorable laws have been enacted, traditional social and cultural barriers have inhibited their implementation.

In replies to the Fifth UN Population Inquiry, 75 percent of the developing countries responding said that they had taken measures to enhance the status of women (613). As with other measures mentioned in responses to these inquiries, it is difficult to assess the extent of enforcement. To implement new laws and assess the need for further reform, governments have established:

- Commissions on the status of women, Ministries of Women's Affairs, or similar offices to promote equality of the sexes. Barbados, Botswana, the Dominican Republic, Indonesia, Lesotho, Maldives, Senegal, Sudan, and Venezuela are among the countries that have established such offices (521, 613).
- Ombudsmen to make sure that employers comply with equal employment requirements, as in Sweden (194).
- Women's commissions or the use of existing law reform commissions to spearhead reforms of laws that discriminate against women. For example, in 1978 the National Commission on the Status of Women in Barbados made detailed recommendations for legal reforms based on a comprehensive analysis of Barbadian laws (502).
- Specific goals within development plans for improved women's status. For example, Pakistan's Sixth 5-Year Plan (1984–89) makes a commitment to the improvement of women's status, although it has not followed this commitment with adequate budgetary allocations (414).
- Funds allocated to improve women's status, such as funds for literacy programs, training programs, employment opportunities, and higher school enrollment. For example, in Kenya funds provided by the Women's Bureau help local women's groups develop income-producing agricultural and crafts projects (728).



"Half of the population is women. To limit women is to limit society." A poster from the National Population Council of Mexico stresses the contribution women can make if given opportunities.

POLICY-MAKING AND IMPLEMENTATION

Over the past ten years at least 50 countries have changed laws or implemented policies that encourage lower fertility. In some countries these changes have been part of extensive efforts to improve maternal and child health, encourage family planning, or slow population growth. In others, they are hesitant first steps that may lead to more extensive policies and programs. In still others, changes are part of comprehensive reforms of family law or criminal codes.

The range of policy options is broad, covering a spectrum from policy statements in national development plans to budgetary allocations for family planning programs. Policy-makers the world over can examine these options for possible use in their own countries. Moreover, laws and policies adopted in one country can serve as models, to be adapted to conditions in other countries. This is particularly true where countries share the same legal heritage, such as common, civil, or Islamic law.

Policy Change Slow

Yet the ease of policy reform should not be exaggerated. New ideas gain acceptance slowly. Priorities can shift frequently to reflect different national needs. Often opinions and attitudes need to change before a policy or law can be reformed or effectively implemented.

Policy-makers in many countries are confronted with customs and traditions that make reform difficult. This is particularly true where laws and policies call for continuing social change, as in improving women's status or making family planning services and information easily available to all people. As a result, legal and policy reform must be viewed within the context of a complex mosaic of tradition, custom, and religious practice.

Even in countries where government power is most centralized, a gradual, step-by-step shift takes place when laws and policies are changed. This process involves leaders outside government, policy-makers, and the public at large. Key factors in this process are:

- a broad consensus on the importance and need for a policy;
- dynamic leaders, inside and outside government, who see that population policy is important, support family planning, and organize action in favor of it;
- private organizations and institutions that take an interest in population policy—for example, medical organizations or women's groups—and the role of family planning associations;
- local political support from powerful groups such as religious organizations and political parties;
- the availability of clear, convincing evidence that high fertility causes problems—evidence such as housing shortages, food shortages, environmental degradation, high maternal and infant death rates, or deaths from induced abortions;
- the availability of financing, both national and international, to carry out policy and implement programs;
- the availability of personnel and physical resources to carry out policy and implement programs (486, 489, 493, 520, 536, 570, 688).

In the field of population policy, crucial support for new policies has come from health workers who see firsthand the problems of uncontrolled fertility, from university centers where demographers calculate the population increases that loom ahead, and from parliamentarians who must allocate scarce resources. Public health experts, demographers, physicians, and their organizations have actively argued for and documented the need for government action to lower fertility.

National, International, and Private Support Needed to Implement Population Policies

A number of recommendations from the 1984 International Conference on Population focus on implementation of population laws and policies. These include:

Recommendation 74

Governments, with the assistance, as appropriate, of intergovernmental and non-governmental organizations, should continue to explore innovative methods for spreading awareness of demographic factors and for fostering the active involvement and participation of the public in population policies and programmes and to intensify training of national personnel who are engaged in information, education and communication activities (including the management and planning of those activities), in developing integrated communication activities and education strategies, utilizing mass media and community-level and interpersonal communication techniques.

Recommendation 75

Governments are invited to develop an adequate corps of trained persons for the effective formulation and implementation of integrated population and development policies, plans and programmes at all levels. In this regard, increased efforts must be made by Governments and training institutions, both at national and international levels, to further facilitate the integration of population studies into the training curricula for policy-makers and executives who plan and implement development programmes.

Recommendation 84

National non-governmental organizations are invited to continue, in accordance with national policies and laws, their pioneering work in opening up new paths and to respond quickly and flexibly to requests from Governments, intergovernmental and international non-governmental organizations, as appropriate, for the further implementation of the World Population Plan of Action. Governments are urged, as appropriate, within the framework of national objectives, to encourage the innovative activities of non-governmental organizations and to draw upon their expertise, experience and resources in implementing national programmes. Donors are invited to increase their financial support to non-governmental organizations.

Recommendation 85

Members of parliament, the scientific community, the mass media, and others in influential positions are invited, in their respective areas of competence, to create an awareness of population and development issues and to support appropriate ways of dealing with these issues.

Recommendation 86

Policy makers, parliamentarians, and other persons in public life are encouraged to continue to promote and support actions to achieve an effective and integrated approach to the solution of population and development problems by arousing public awareness and working towards the implementation of national population policies and programmes. The United Nations Fund for Population Activities and the other international organizations concerned are invited to continue providing support for such actions.

Role of Information

Many types of information and support are necessary to justify changes in policy. Projecting the impact of population growth on resources and government services has convinced some governments of the need for action (486, 520). Evidence that family planning is acceptable and widely used is important. The example of private agencies and national governments that started family planning programs has helped to confirm the feasibility of government action to lower fertility (729). Also, exchanges of information such as international conferences and consultations between and among policy-makers, parliamentarians, and technical experts are valuable. In addition, technical expertise from national and international donor agencies and private-sector organizations reassures the policy-makers that new policies and programs can be implemented in their own countries (520).

The general public also needs to be aware of law and policy changes and how those changes will affect each individual. In the case of family planning, public acceptance and support is especially important since basic decisions about family size are made by individuals, not legislators. Policy-makers are rightly sensitive to changes that affect their supporters or constituents (723).

Enforcement and Implementation Crucial

Once a policy has been adopted or a law changed, it has impact only if it is implemented. Implementing new pol-

A Decade of Progress in Family Planning

Government family planning efforts have increased moderately over a 10-year period. This conclusion emerges from an analysis being conducted by Robert J. Lapham and W. Parker Mauldin of family planning effort in 1972 and 1982 (469). To measure program effort, Lapham and Mauldin are evaluating 30 policy and program components for each country examined. This 30-item scale is a revised and expanded version of an earlier 15-item scale developed by the same researchers in 1972 (468) and later applied to almost 100 countries (405, 483). In the revised scale there are 8 items on policy and stage-setting activities, 13 on service and service-related activities, 3 on record-keeping and evaluation, and 6 on the availability and accessibility of supplies and services. These items are being scored according to the best judgment of national and international experts.

As Table 12 shows, of the 88 countries with both 1972 and 1982 scores, 36 have improved program effort by 10 percent or more; 46 show little or no change; and 6 show less effort. Those printed in dark type are judged to have strong programs now; those printed in light, upright type, programs of moderate strength; those printed in italic, weak programs.

Table 12. Changes in Family Planning Effort, 1972–1982, by Change in Score as a Percentage of Maximum Possible Score, 88 Countries

	Countries in:				
Extent of Change	**East & South Asia**	**Latin America**	**Middle East & North Africa**	**Sub-Saharan Africa**	
Score up 10% or more	Bangladesh **Sri Lanka** **Indonesia** *Papua New Guinea* Thailand *Nepal* *Pakistan*	Mexico *Brazil* *Haiti* *Ecuador* *Peru* El Salvador *Nicaragua* **Colombia**	*Lebanon* *Morocco* Tunisia *Yemen, PDR* *Jordan* *Algeria* *Egypt*	*Rwanda* *Senegal* *Uganda* Congo *Zimbabwe* Sierra Leone	*Mozambique* *Lesotho* *Zambia* *Liberia* *Tanzania* *Togo* *Burundi* *Mali*
Score essentially unchanged (±9% or less)	*Afghanistan* *Burma* **China** *Kampuchea* **Hong Kong** India **Republic of Korea** *Laos* Malaysia *Mongolia* Philippines **Singapore** **Taiwan**	*Bolivia* Cuba Dominican Republic *Guatemala* *Honduras* *Paraguay* Trinidad & Tobago *Venezuela*	*Iraq* *Kuwait* *Libya* *Mauritania* *Sudan* *Syria* *Turkey* *Yemen, AR*	*Burkina Faso* *Cameroon* *Chad* *Central African Republic* *Equitorial Guinea* *Ethiopia* *Ghana* *Guinea*	*Ivory Coast* *Kenya* *Madagascar* *Malawi* **Mauritius** *Niger* *Nigeria* *Somalia* *Zaire*
Score down 10% or more	Fiji Viet Nam*	*Costa Rica* Jamaica Panama *Chile*			

dark type = strong program in 1982; light, upright type = program of moderate strength in 1982; *italic type* = weak program in 1982.

*1972 score is for North Viet Nam only.

Source: Lapham & Mauldin (469)

In the area of policy and stage-setting activities, the eight items used in the scoring for 1982 are (1) official policies, (2) statements by leaders, (3) level of family planning leadership, (4) age at marriage policy, (5) laws on import and distribution of contraceptives, (6) advertising of contraceptives in mass media, (7) assistance for family planning programs from government ministries other than the agency with primary responsibility, and (8) the extent of in-country financial support for programs. Measured by these criteria in 1982, the 10 countries with the highest policy support were: China, India, Mauritius, Mexico, Indonesia, South Korea, Singapore, Sri Lanka, Jamaica, and Taiwan. These are generally the same countries that scored high in program effort overall with a few exceptions: Hong Kong and Colombia scored substantially lower on policy than on the service and service-related areas or availability. Mexico, India, and Jamaica scored higher on policy than on service-related areas.

icies, enforcing new duties, and encouraging the exercise of newly constituted rights can often be difficult, particularly among groups that have little or no access to formal legal or administrative systems (501). Such groups will continue to rely on familiar mechanisms of redress, where outcomes are predictable. People will be reticent to exercise newly created rights or use new services particularly where there is little community support. As a result, both public and private support for new laws or policies is needed to help assure that services are conscientiously provided, that rights can be exercised, and that duties are uniformly enforced.

Public and private support has come with education about new laws and policies. In addition, training has been important for all those concerned with legal and policy implementation, such as health workers, public prosecutors, and judges, particularly family and religious judges. Where new policies are embodied in statutes, promptly issued administrative regulations that faithfully reflect the policy are necessary. Similarly, effective enforcement machinery is needed to narrow the gap between the law on the books and the law as practiced. Legal challenges to weak or unfair enforcement are also needed to ensure long-term implementation. Thus, even after policy changes, vigilance is required to maintain and build support.

With these efforts and a sensitivity to the complexities of social and legal systems, law and policy can continue to play an instrumental role in helping men and women to determine freely and responsibly the number and spacing of their children.

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Country	Ref. No.	Statutes and Regulations
Albania	1	Article 47, Constitution, December 28, 1976. (UNFPA. ARPL 1978, p. 56.)
	2	Article 52, Constitution, December 28, 1976. (UNFPA. ARPL 1978, p. 111.)
	3	Articles 39 and 46, Constitution, December 28, 1976. (UNFPA. ARPL 1978, p. 85.)
Algeria	4	Charte nationale, 5 juillet 1976. [National charter, July 5, 1976.][FRE] (IACPL. ARPL 1976, p. 145.)
	5	Ordinance No. 76–79, October 23, 1976. Journal Officiel de la République Algérienne Démocratique et Populaire, December 19, 1976. No. 101, p. 1116 et seq. (IDHL 29(2): 261. 1978.)
Angola	6	Law No. 9/78, May 26, 1978. Diário da República, June 1, 1978. (UNFPA. ARPL 1981, p. 100.)
Argentina	7	Decree No. 659. Diário Oficial, February 28, 1974. (IACPL. ARPL 1974, p. 33–34.)
Australia	8	Act No. 8642, December 17, 1974, amending Part XIV, Health Act, 1958 and other acts. (IDHL 26(4): 729–731. 1975.)
Austria	9	Austrian Conciliation and Arbitration Commission Document 48/79, March 9, 1979. (UNFPA. ARPL 1979, p. 73.)
	10	Federal Act, February 23, 1979, concerning equal treatment with respect to wages. Bundesgesetzblatt 38(108): 683–687. March 15, 1979. (UNFPA. ARPL 1975, p. 103–104.)
	11	Federal Law, June 15, 1978, concerning changes in the Law of Succession, of Community Property and of Divorce, BGBl. 280/1978; Federal Law, June 30, 1978, concerning a change in the Marriage Law, BGBl.303/1978. (UNFPA. ARPL 1979, p. 34.)
	12	Law BGB1.No. 1975/412, Amendment of Civil Code, July 1, 1975. (IACPL. ARPL 1975, p. 85.)
	13	Section 90, Penal Code, adopted in 1974. (IACPL. ARPL 1974, p. 16.)
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Korea, Republic of	120	Law No. 2932, December 22, 1976. (UNFPA. ARPL 1978, p. 116.)
	121	Law No. 3051, December 31, 1977. (UNFPA. ARPL 1978, p. 35.)
Libya	122	Act No. 13, April 14, 1980. (UNFPA. ARPL 1981, p. 233.)
Luxembourg	123	Law on Sexual Education, Prevention of Illegal Abortion, and Voluntary Termination of Pregnancy, November 15, 1978. Mémorial. Journal Officiel du Grand-Duché de Luxembourg, A, No. 81, December 6, 1978, p. 1968–1970. (IACPL. ARPL 1978, p. 7.)
	124	Law on the reform of divorce, December 5, 1978. Mémorial. Journal Officiel du Grand-Duché de Luxembourg, A, No. 81, December 6, 1978, p. 1979. (UNFPA. ARPL 1978, p. 30.)
Madagascar	125	Ordinance No. 75-013-0/DM. Journal Officiel, June 5, 1975. (IACPL. ARPL 1976, p. 125.)
Malaysia	126	Act No. A481, amending the Medicines (Advertisement and Sale) Ordinance, February 29, 1980. (IDHL 32(4): 799. 1981.)
	127	Law Reform (Marriage and Divorce) Act, 1976. (UNFPA. ARPL 1976, p. 67.)
	128	Law Reform (Marriage and Divorce) Act, 1980. (UNFPA. ARPL 1980, p. 104.)
Malta	129	Conditions of Employment (Regulation) (Amendment) Act, 1981. (UNFPA. ARPL 1981, p. 213–214.)
Mauritius	130	Labour Act, December 24, 1975. (IACPL. ARPL 1976, p. 126.)
Mexico	131	Article 4, Constitution, 1974. Presidential Decree, September 18, 1974. (UNFPA. ARPL 1974, p. 9.)
	132	General Population Law, 1974, as amended December 5, 1974. (IACPL. ARPL 1974, p. 10.)
Morocco	133	Letter, May 1975, from Dr. A Touhami, Minister of Public Health, No. 43/030/PF. to Medical Directors of Provinces and Prefectures regarding resupply of pills. (IACPL. ARPL 1975, p. 28–29.)
Mozambique	134	Articles 1–10, Decree No. 37/76, Council of Ministers, October 26, 1976. (IACPL. ARPL 1976, p. 126–127.)
Netherlands	135	Decree, April 2, 1982, amending Decree on preparation and supply of pharmaceutical products of 1977. (IDHL 34(3): 516–517. 1983.)
	136	Decree, August 18, 1979, prescribing rules concerning rubber condoms. (IDHL 32(2): 285. 1981.)
New Zealand	137	Contraception, Sterilization and Abortion Act, 1977. Statutes of New Zealand, No. 112, 1977. (UNFPA. ARPL 1977, p. 16.)
	138	Family Proceedings Act, January 21, 1981. Commonwealth Law Bulletin 7(2): 483–484. 1981. (UNFPA. ARPL 1981, p. 114–115.)
	139	Maternity Leave and Employment Protection Act, 1980 (No. 162). (IDHL 32(4): 701. 1981.)
	140	Revised Administrative Rules, New Zealand State Services, 1978. (UNFPA. ARPL 1978, p. 88.)
Nicaragua	141	Section 360, Paragraph 2, 1950, Codigo Penal.
Nigeria	142	Constitution, October 1, 1979. (UNFPA. ARPL 1979, p. 106–107).
	143	Ministry of Establishment circular, June 1, 1979, on equal treatment for women in the civil service. (UNFPA. ARPL 1980, p. 278.)
Norway	144	Act on the Protection of Workers and the Working Environment, July 1, 1977. (UNFPA. ARPL 1977, p. 55.)
	145	Law No. 45, September 6, 1978. Norsk Lovtidend 1978, Avd. 1, p. 395. (UNFPA. ARPL 1978, p. 89.)
	146	Law No. 57 on Sterilization, June 3, 1977. (IDHL 30(1): 118–122. 1979.)
Panama	147	Article 108, Constitution, 1983.
	148	Law No. 32, September 21, 1979. Gaceta Oficial No. 18.930, October 19, 1979. (UNFPA. ARPL 1979, p. 141.)
Papua New Guinea	149	Poisons and Dangerous Substance Act, 1952 as amended, in 1975, Second Schedule. (IDHL 28(3): 688. 1977.)
Peru	150	Article 2(2) and 43, Constitution, July 12, 1979. (UNFPA. ARPL 1980, p. 279.)
	151	Article 6, Constitution, July 12, 1979. (UNFPA. ARPL 1980, p. 22.)
	152	Article 25, Constitution, July 12, 1979. (UNFPA. ARPL 1980, p. 383.)
	153	Articles 42, 48, and 57, Constitution, July 12, 1979. (UNFPA. ARPL 1980, p. 244–245.)
	154	Section 12, Ministerial Resolution 0018-77-SA/DS, February 17, 1977. El Peruano 10778 (1): 5. February 25, 1977. (IDHL 32(2): 255–256. 1981.)
	155	Section 7, Ministry of Health Resolution on Population Policy, No. 0018-77-SA/DS, February 17, 1977, elaborating Supreme Decree 00625-76-SA, Guidelines for Population Policy for Peru 1976. (IDHL 28(3): 689. 1977.)
	156	Supreme Resolution, December 17, 1981. (IDHL 34(1): 71. 1983.)
Philippines	157	Article 15, Section 10, Constitution, 1973. (Blaustein, A.P. and Flanz, G.H., eds. Constitutions of the countries of the world: Philippines. Dobbs Ferry, New York, Oceana, 1979. p. 44.)

Country	Ref. No.	Statutes and Regulations
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	159	Presidential Decree No. 965, July 20, 1976. (UNFPA. ARPL 1976, p. 43.)
	160	Presidential Decree No. 1013, September 22, 1976, amending Section 13, Philippine Medical Care Act, 1969. (IACPL. ARPL 1976, p. 37.)
	161	Presidential Decree No. 1083, February 4, 1977. (UNFPA. ARPL 1977, p. 29.)
	162	Section 14-A, Presidential Decree 1202, September 27, 1977. (UNFPA. ARPL 1978, p. 63–64.)
	163	Presidential Decree No. 1587, Revised Administrative Code, 1978, June 11, 1978. (UNFPA. ARPL 1979, p. 75.)
	164	Republic Act 6365, as revised in 1972 through Presidential Decree Nos. 69 and 79.
Portugal	165	Article 36, Constitution, 1976. (UNFPA. ARPL 1976, p. 68.)
	166	Article 67, Constitution, 1976. (UNFPA. ARPL 1976, p. 17.)
	167	Articles 1671, 1672, 1673, 1677, 1678, 1682, Civil Code as amended, 1977. (UNFPA. ARPL 1977, p. 40.)
	168	Legislative Decree Nos. 561/1975 and 605/1976 amending the Civil Code and the Code of Civil Procedure. (UNFPA. ARPL 1976, p. 73.)
	169	Legislative Decree No. 392/79. Diário da República, Series I, No. 218, September 20, 1979. p. 2466–2469. (UNFPA. APRL 1981, p. 281–282.)
	170	Legislative Decree No. 503/80. (UNFPA. ARPL 1981, p. 215–216.)
Rwanda	171	Constitution, December 17, 1978. (UNFPA. ARPL 1979, p. 107.)
	172	Décret-Loi nº 03/17, 16 janvier 1981, portant création de l'Office National de la Population. [Decree Law No. 03/17, January 16, 1981. Creation of the National Office of Population][FRE].
Saudi Arabia	173	Royal Decree, April 28, 1975. (IACPL. ARPL 1975, p. 31.)
Senegal	174	Act No. 48/80, August 22, 1980. (UNFPA. ARPL 1980, p. 198.)
	175	Circular, July 7, 1980, announcing the creation of a National Commission of Population (CONAPOP). (UNFPA. ARPL 1980, p. 23.)
	176	Law No. 80-49, December 24, 1980. Journal Officiel de la République de Sénégal, December 26, 1980, p. 1506–1507. (UNFPA. ARPL 1981, p. 30.)
Seychelles	177	Social Security Decree No. 7, February 15, 1979. (UNFPA. ARPL 1980, p. 219.)
Singapore	178	Voluntary Sterilization Act, 1974 (No. 25), December 1, 1974. (IDHL 26(3): 593–596. 1975.)
	179	Voluntary Sterilization Regulations, 1974, December 27, 1974. (IDHL 26(3): 596. 1975.)
Somalia	180	Section 423, Legislative Decree No. 5, December 16, 1962. (UNFPA. Survey of laws on fertility control: country profiles, p. 31.)
South Africa	181	Act No. 2, Section 4, Abortion and Sterilization Act, 1975, February 28, 1975. (IDHL 26(4): 844–850. 1975.)
	182	Abortion and Sterilization Regulations, June 20, 1975. (IDHL 27(1): 204–205. 1976.)
Spain	183	Act, April 21, 1976. Boletín Oficial del Estado (96) 7894. April 21, 1976. (IACPL. ARPL 1976, p. 143.)
	184	Amended Law Section 428 to permit voluntary sterilization. Boletín Oficial del Estado (152): 17.915. June 27, 1983.
	185	Article 27, Constitution, October 20, 1978. (UNFPA. ARPL 1978, p. 111.)
	186	Article 32, Constitution, October 28, 1978. Boletín Oficial de las Cortes, Num. 170, October 28, 1978. (UNFPA. ARPL 1978, p. 29.)
	187	Law No. 45/1978, October 7, 1978, amending Section 416, Criminal Code. (UNFPA. ARPL 1978, p. 14.)
	188	Law No. 30/81 (Jefatura del Estado), Civil Code, July 7, 1981, modifying the regulation of marriage and specifying the procedure to be followed in cases of nullity, separation, and divorce. Boletín Oficial del Estado (172). July 20, 1981.
	189	Ministerial Decree, April 11, 1980, National Labour Protection Fund and the Ministry of Culture. (UNFPA. ARPL 1980, p. 283.)
Sri Lanka	190	Articles of the Constitution, August 31, 1978. (UNFPA. ARPL 1978, p. 89.)
	191	Maternity Benefits (Amendment) Act No. 13, 1978. (UNFPA. ARPL 1978, p. 57–58.)
	192	[Policy decision by Ministry of Health removing prescription requirement for pills.] (IACPL. ARPL 1975, p. 21.)
Sweden	193	[Repeal of Equality Act No. 503, June 1979.] Svensk författningssamling, SFS 1979: 1118. December 27, 1979. (UNFPA. ARPL 1980, p. 284–285.)
	194	[Act on equality in working life, December 17, 1979.] (UNFPA. ARPL 1980, p. 284.)
	195	National Board of Health and Welfare. Decision concerning extension of the indications for the registered pharmaceutical specialties Depo-Provera suspension for injection 50 mg/ml and 150 mg/ml. September 11, 1981. 16 p.
	196	National Board of Health and Welfare Circular, containing instructions for the implementation of the Sterilization Law, October 31, 1976. (IDHL 27(4): 868. 1976.)
	197	National Board of Health and Welfare Circular, containing regulations of the enforcement of the Sterilization Law, October 31, 1975. (IDHL 27(4): 867. 1976.)
	198	Order No. 1, January 12, 1978, National Board of Health and Welfare. Socialstyrelsens författningssamling, 1978, February 13, 1978. (IDHL 30(2): 317. 1979.)
	199	Order No. 21, March 11, 1980, National Board of Health and Welfare. (UNFPA. ARPL 1980, p. 378.)
	200	Sterilization Law No. 580, June 12, 1975. (IDHL 27: 867. 1976.)
Switzerland	201	[Constitutional amendment, equal pay, June 14, 1981.] (UNFPA. ARPL 1981, p. 273.)
	202	Guidelines of medical ethics concerning sterilization. Schweizerische Ärztezeitung/Bulletin des médecins suisses 63(11): 624. March 17, 1982. (UNFPA. ARPL 1981, p. 33.)
Tanzania	203	Act No. 1, 1975. Acts supplement to the gazette of the United Republic of Tanzania LVI (14). April 4, 1975. (UNFPA. ARPL 1975, p. 109.)
Thailand	204	Amendment to the Taxation Code (Book VI), 1980. (UNFPA. ARPL 1981, p. 383.)
	205	Article 35, Constitution, 1978. (UNFPA. ARPL 1981, p. 274.)
	206	Article 69, Constitution, December 22, 1978.
	207	Medical Treatment Welfare Act, 1980. (UNFPA. ARPL 1981, p. 383.)
	208	Royal Decree of the Children Assistance Fund Act, 1978. (UNFPA. ARPL 1981, p. 383.)
	209	Royal Decree on welfare treatment, 1980. (UNFPA. ARPL 1981, p. 400.)
	210	Section 3.2.2.(1.1), Fifth National Economic and Social Development Plan, 1982–1986. (UNFPA. ARPL 1981, p. 23.)
	211	Section 3.2.2(2.1), Fifth National Economic and Social Development Plan, 1982–1986. (UNFPA. ARPL 1981, p. 23.)
Togo	212	Personal and Family Code, January 1980, amending sections of the 1924 Civil Code. (UNFPA. ARPL 1980, p. 96.)
Trinidad and Tobago	213	Government Notice No. 163, October 31, 1979. (UNFPA. ARPL 1979, p. 20.)
Tunisia	214	Law No. 61-7, January 9, 1961. (UNFPA. Survey of contraceptive laws: country profiles, checklists, and summaries, p. 82.)
	215	Law No. 81-7, February 18, 1981. Journal Officiel de la République Tunisienne 11: 334–335. February 20, 1981.
	216	Law No. 61-7, January 9, 1961, Office National du Planning Familial et de la Population, Legislation tunisienne en matière de planning familial, 1976.
	217	Presidential Decree No. 75-952, December 30, 1975. Journal Officiel de la République Tunisienne, December 30/31, 1975. p. 2884. (UNFPA. ARPL 1975, p. 105.)
Turkey	218	Article 10, Constitution, November 7, 1982. Official Gazette No. 17863, November 9, 1982.
	219	Article 41, Constitution, November 7, 1982. Official Gazette No. 17863, November 9, 1982.
	220	Article 42, Constitution, November 7, 1982. Official Gazette No. 17863, November 9, 1982.
	221	Law No. 2927, Population Planning, May 24, 1983. Official Gazette No. 18059, May 27, 1983.
Uganda	222	Employment Decree, June 13, 1975. (IACPL. ARPL 1976, p. 128.)
Union of Soviet Socialist Republics	223	Articles 34 and 35, constitution adopted at the Seventh (Special) Session of the Supreme Soviet of the USSR, Ninth Convocation, October 7, 1977. (UNFPA. ARPL 1977, p. 73.)
	224	Article 45, constitution adopted at the Seventh (Special) Session of the Supreme Soviet of the USSR, Ninth Convocation, October 7, 1977. (UNFPA. ARPL 1977, p. 76.)
United Kingdom	225	Department of Health and Social Security memorandum, revision of Section G. (UNFPA. ARPL 1981, p. 30.
	226	Medicines (Prescriptions Only) Amendment (No. 2) Order 1928, Section 5. Statutory Instruments No. 907, 1978. (UNFPA. ARPL 1978, p. 14.)
United States	227	Code of Federal Regulations, Vol. 21, Sec. 301. 501 et seq., 1979.
	228	Code of Federal Regulations, Vol. 42, Sec. 50.201 et seq., 1982.
	229	International Development and Food Assistance Act, 1977. (UNFPA. ARPL 1977, p. 7.)
	230	Code of Federal Regulations, Vol. 21, Sec. 381(d), 1976.
Upper Volta*	231	Constitution, December 13, 1977. (UNFPA. ARPL 1978, p. 91.)
Uruguay	232	Act No. 15084, November 25, 1980. Diario Oficial No. 20885, December 9, 1980. (UNFPA. ARPL 1981, p. 203.)
Yugoslavia	233	Article 191, Constitution, February 21, 1974. (IACPL. ARPL 1974, p. 15.)
Republic of Croatia	234	Law on Medical Measures to Implement the Right to a Free Decision on the Birth of Children, April 21, 1978. (UNFPA. ARPL 1978, p. 10.)
Republic of Slovenia	235	Law on Medical Measures to Implement the Right to a Free Decision on the Birth of Children, April 20, 1977. (IDHL 28(4): 1112–1115. 1977.)
Zaire	236	Act, February 15, 1978, revising 1967 constitution. (UNFPA. ARPL 1978, p. 91.)
Zimbabwe	237	Act No. 23, 1981, to amend the Industrial Concilliation Act. (IDHL 34(1): 72. 1983).

*New name: Burkina Faso.

ADDENDA

Country	Ref. No.	Statutes and Regulations
Bolivia	238	Sections 1–3, 5–7, 9–11, 15, 19–21, Regulations on the conduct of family health activities, March 15, 1982. (IDHL 34(3): 510–511. 1983.)
Canada	239	Constitution, 1982. (UNFPA. ARPL 1982, p. 272–273.)
Colombia	240	Resolución No. 08514, 27 de junio de 1984. [Resolution No. 08514, June 27, 1984.][SPA] Bogotá, Ministerio de Salud, 1984. 3 p.
Honduras	241	Resolución No. 141–84, 18 de julio de 1984. [Resolution No. 141–84, July 18, 1984.][SPA] La Gaceta, Diario Oficial de la República de Honduras, 1984. p. 7.
Korea, Republic of	242	Family Planning Programme, 1983. (UNFPA. ARPL 1982, p. 12.)
Trinidad and Tobago	243	Succession Act, 1981. (UNFPA. ARPL 1981, p. 115.)

CASES

Country	Ref. No.	Cases
Canada	250	Quebec Superior Court. Dame Cataford et al. c. Docteur Moreau. (UNFPA. ARPL 1979, p. 7.)
Council of Europe	251	European Court of Human Rights. Case of Kjeldsen, Busk Madsen and Pedersen: judgment. Strasbourg, Austria. December 7, 1976, 28 p.
France	252	Cour de Cassation (Court of Appeals). Bartoseck et Prevotel c. Min. publ. [the case of the Bordeaux sterilizers], July 1, 1937, S.1938-1-193, note Tortat (Recueil Sirey); D.H. 1937, p. 537 (Recueil Dalloz).
	253	Cour de Cassation (Court of Appeals). Dame C. c. Son Mari,

Country	Ref. No.	Cases
		April 18, 1980. (La Semaine Juridique No. 19564, May 13, 1981.)
	254	Cour d'Appel Paris (Paris Court of Appeals). Dame F. c. Son Mari, 25E Ch. B., June 1, 1979. (La Semaine Juridique No. 19565, May 13, 1981.)
Germany, Federal Republic of	255	Bundesgerichtshof (Federal Supreme Court). Decision of October 27, 1964. ["Dr. Dohrn Case"] (Entscheidungen des Bundesgerichtshofes in Strafsachen 20: 81. 1984.)
	256	Bundesgerischtshof (Federal Supreme Court). Decision of June 29, 1976. (Entscheidungen des Bundesgerichtshofes in Zivilsachen 67: 48. 1976.)
United Kingdom	257	High Court. Gillick v. West Norfolk and Wisbech Area Health Authority. 3 W.L.R. (Q.B.D.), June 1983.
United States	258	Supreme Court. Bolger v. Young Drug Products Corp. (U.S. Law Week 51: 4961. 1983.)
	259	Supreme Court. Carey v. Population Services International. (U.S. Reports 431: 678. 1977.)
	260	District of Columbia Federal Circuit Court of Appeals. Planned Parenthood Federation of America v. Heckler. (Federal Reporter, 2nd Series, 712: 650–668. July 8, 1983.)
	261	New Jersey Superior Court. Ponter v. Ponter. (Atlantic Report, 2nd Series, 342: 574–578. 1576.)

ARTICLES AND BOOKS

Asterisk (*) designates an article that was of particular value in the preparation of this issue of **Population Reports.**

300. ANONYMOUS. Ambivalent attitudes to family planning and population in Cameroon. IPPF Open File, July 8, 1983. p. 40.
301. ANONYMOUS. Bangladesh awards for achieving family planning targets. IPPF Open File, December 2, 1983. p. 17.
302. ANONYMOUS. Bangladesh drug control ordinance. Outlook, March 1983.
303. ANONYMOUS. Financial and leave incentives for sterilization. IPPF Law File No. 1, 1980. p. 8.
304. ANONYMOUS. France steps up official family planning campaign, December 19, 1981. IPPF Open File, January 8, 1982. p. 23.
305. ANONYMOUS. Judge rules against pill ban for under-16s. IPPF Law File, July 29, 1983. p. 46.
306. ANONYMOUS. In brief: Senegal. People 8(2): 30. 1982.
307. ANONYMOUS. Incentives to practice family planning. IPPF Law File No. 7–8, July–August 1978. p. 3.
308. ANONYMOUS. Iraq takes the pill off prescription. IPPF Open File, December 16, 1983. p. 43.
309. ANONYMOUS. Interview with S. Haryono. International Family Planning Perspectives 5(2): 59–62. June 1979.
310. ANONYMOUS. Kenya launches National Population Council on November 9, 1982. IPPF Open File, November 19, 1982. p. 19.
311. ANONYMOUS. Law and policy: passing paramedics. People 3(3): 37. 1976.
312. ANONYMOUS. Law clarified. People 10(2): 30. 1983.
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Mexico City Declaration on Population and Development

1. The International Conference on Population met in Mexico City from 6 to 14 August 1984, to appraise the implementation of the World Population Plan of Action, adopted by consensus at Bucharest, ten years ago. The Conference reaffirmed the full validity of the principles and objectives of the World Population Plan of Action and adopted a set of recommendations for the further implementation of the Plan in the years ahead.

2. The world has undergone far-reaching changes in the past decade. Significant progress in many fields important for human welfare has been made through national and international efforts. However, for a large number of countries it has been a period of instability, increased unemployment, mounting external indebtedness, stagnation and even decline in economic growth. The number of people living in absolute poverty has increased.

3. Economic difficulties and problems of resource mobilization have been particularly serious in the developing countries. Growing international disparities have further exacerbated already serious problems in social and economic terms. Firm and widespread hope was expressed that increasing international co-operation will lead to a growth in welfare and wealth, their just and equitable distribution and minimal waste in use of resources, thereby promoting development and peace for the benefit of the world's population.

4. Population growth, high mortality and morbidity, and migration problems continue to be causes of great concern requiring immediate action.

5. The Conference confirms that the principal aim of social, economic and human development, of which population goals and policies are integral parts, is to improve the standards of living and quality of life of the people. This Declaration constitutes a solemn undertaking by the nations and international organizations gathered in Mexico City to respect national sovereignty to combat all forms of racial discrimination including *apartheid*, and to promote social and economic development, human rights and individual freedom.

6. Since Bucharest the global population growth rate has declined from 2.03 to 1.67 per cent per year. In the next decade the growth rate will decline more slowly. Moreover, the annual increase in numbers is expected to continue and may reach 90

million by the year 2000. Ninety per cent of that increase will occur in developing countries and at that time 6.1 billion people are expected to inhabit the Earth.

7. Demographic differences between developed and developing countries remain striking. The average life expectancy at birth, which has increased almost everywhere, is 73 years in developed countries, while in developing countries it is only 57 years and families in developing countries tend to be much larger than elsewhere. This gives cause for concern since social and population pressures may contribute to the continuation of the wide disparity in welfare and the quality of life between developing and developed countries.

8. In the past decade, population issues have been increasingly recognized as a fundamental element in development planning. To be realistic, development policies, plans and programmes must reflect the inextricable links between population, resources, environment and development. Priority should be given to action programmes integrating all essential population and development factors, taking fully into account the need for rational utilization of natural resources and protection of the physical environment and preventing its further deterioration.

9. The experience with population policies in recent years is encouraging. Mortality and morbidity rates have been lowered, although not to the desired extent. Family planning programmes have been successful in reducing fertility at relatively low cost. Countries which consider that their population growth rate hinders their national development plans should adopt appropriate population policies and programmes. Timely action could avoid the accentuation of problems such as overpopulation, unemployment, food shortages, and environmental degradation.

10. Population and development policies reinforce each other when they are responsive to individual, family and community needs. Experience from the past decade demonstrates the necessity of the full participation by the entire community and grass-roots organizations in the design and implementation of policies and programmes. This will ensure that programmes are relevant to local needs and in keeping with personal and social values. It will also promote social awareness of demographic problems.

11. Improving the status of women and enhancing their role is an important goal in itself and will also influence family life and size in a positive way. Community support is essential to bring about the full integration and participation of women into all phases and functions of the development process. Institutional, economic and cultural barriers must be removed and broad and swift action taken to assist women in attaining full equality with men in the social, political and economic life of their communities. To achieve this goal, it is necessary for men and women to share jointly responsibilities in areas such as family life, child-caring and family planning. Governments should formulate and implement concrete policies which would enhance the status and role of women.

12. Unwanted high fertility adversely affects the health and welfare of individuals and families, especially among the poor, and seriously impedes social and economic progress in many countries. Women and children are the main victims of unregulated fertility. Too many, too close, too early and too late pregnancies are a major cause of maternal, infant and childhood mortality and morbidity.

13. Although considerable progress has been made since Bucharest, millions of people still lack access to safe and effective family planning methods. By the year 2000 some 1.6 billion women will be of childbearing age, 1.3 billion of them in developing countries. Major efforts must be made now to ensure that all couples and individuals can exercise their basic human right to decide freely, responsibly and without coercion, the number and spacing of their children and to have the information, education and means to do so. In exercising this right, the best interests of their living and future children as well as the responsibility towards the community should be taken into account.

14. Although modern contraceptive technology has brought considerable progress into family planning programmes, increased funding is required in order to develop new methods and to improve the safety, efficacy and acceptability of existing methods. Expanded research should also be undertaken in human reproduction to solve problems of infertility and subfecundity.

15. As part of the overall goal to improve the health standards for all people, special attention should be given to maternal and child health services within a primary health care system. Through breast-feeding, adequate nutrition, clean water, immunization programmes, oral rehydration therapy and birth spacing, a virtual revolution in child survival could be achieved. The impact would be dramatic in humanitarian and fertility terms.

16. The coming decades will see rapid changes in population structures with marked regional variations. The absolute numbers of children and youth in developing countries will continue to rise so rapidly that special programmes will be necessary to respond to their needs and aspirations, including productive employment. Aging of populations is a phenomenon which many countries will experience. This issue requires attention particularly in developed countries in view of its social implications and the active contributions the aged can make to the social, cultural and economic life in their countries.

17. Rapid urbanization will continue to be a salient feature. By the end of the century, 3 billion people, 48 per cent of the world's population, might live in cities, frequently very large cities. Integrated urban and rural development strategies should therefore be an essential part of population policies. They should be based on a full evaluation of the costs and benefits to individuals, groups and regions involved, should respect basic human rights and use incentives rather than restrictive measure.

18. The volume and nature of international migratory movements continue to undergo rapid changes. Illegal or undocumented migration and refugee movements have gained particular importance; labour migration of considerable magnitude occurs in all regions. The outflow of skills remains a serious human resource problem in many developing countries. It is indispensable to safeguard the individual and social rights of the persons involved and to protect them from exploitation and treatment not in conformity with basic human rights; it is also necessary to guide these different migration streams. To achieve this, the co-operation of countries of origin and destination and the assistance of international organizations are required.

19. As the years since 1974 have shown, the political commitment of Heads of State and other leaders and the willingness of Governments to take the lead in formulating population programmes and allocating the necessary resources are crucial for the further implementation of the World Population Plan of Action. Governments should attach high priority to the attainment of self-reliance in the management of such programmes, strengthen their administrative and managerial capabilities, and ensure co-ordination of international assistance at the national level.

20. The years since Bucharest have also shown that international co-operation in the field of population is essential for the implementation of recommendations agreed upon by the international community and can be notably successful. The need for increased resources for population activities is emphasized. Adequate and substantial international support and assistance will greatly facilitate the efforts of Governments. It should be provided wholeheartedly and in a spirit of universal solidarity and enlightened self-interest. The United Nations family should continue to perform its vital responsibilities.

21. Non-governmental organizations have a continuing important role in the implementation of the World Population Plan of Action and deserve encouragement and support from Governments and international organizations. Members of Parliament, community leaders, scientists, the media and others in influential positions are called upon to assist in all aspects of population and development work.

22. At Bucharest, the world was made aware of the gravity and magnitude of the population problems and their close interrelationship with economic and social development. The message of Mexico City is to forge ahead with effective implementation of the World Population Plan of Action aimed at improving standards of living and quality of life for all peoples of this planet in promotion of their common destiny in peace and security.

23. IN ISSUING THIS DECLARATION, ALL PARTICIPANTS AT THE INTERNATIONAL CONFERENCE ON POPULATION REITERATE THEIR COMMITMENT AND REDEDICATE THEMSELVES TO THE FURTHER IMPLEMENTATION OF THE PLAN.

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Population Reports

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Number 29
January-February 1985

FAMILY PLANNING PROGRAMS

Population Information Program, The Johns Hopkins University, Hampton House, 624 North Broadway, Baltimore, Maryland 21205, USA

The Impact of Family Planning Programs on Fertility

Editors' Summary. Family planning programs have clearly lowered fertility in a number of developing countries. Fertility has declined most in countries where strong family planning programs operate with government support in favorable social and economic settings. Even in relatively poor countries, however, moderately strong family planning programs have made a difference to fertility. Overall, family planning programs have helped to slow population growth even where other factors—such as lower death rates and more young couples of fertile age—have worked in the opposite direction to increase population growth.

When national family planning programs were first undertaken in the 1960s, the major objectives were not only to improve family health but also to reduce high rates of population growth that slow economic development. By the time of the World Population Conference at Bucharest in 1974, some governments and researchers were arguing that family planning did not work and that fertility would fall only with increased social and economic development. Now, a decade later, extensive data, analyzed by experts from many nations and institutions, show that family planning programs can work. They work best when they are well-managed and strongly supported by governments or other agencies that make family planning supplies and services available and affordable to most of the population.

At the same time, socioeconomic conditions also promote fertility declines, especially such factors as longer life expectancy, higher rates of school enrollment and literacy (especially for females), lower infant mortality rates, greater urbanization, and a higher proportion of workers in nonagricultural jobs. Improving socioeconomic conditions influence fertility directly by increasing personal motivation to have smaller families. Better conditions also influence fertility indirectly by making it easier for family planning programs to function.

Family planning programs in Asia were the first to be established, the first to emphasize fertility reduction, and the first to produce marked changes in fertility. China, Hong Kong, India, Indonesia, Singapore, South Korea, Taiwan, and Thailand all established extensive family planning programs and experienced declines in crude birthrates ranging from about 25 to 60 percent over two decades. In Mexico also, birthrates fell much faster after the government family planning program started. In Africa, national family planning programs in Tunisia and Mauritius spurred fertility declines. In some cases, fertility declines began before national programs were initiated, and they accelerated thereafter; in other cases, steady declines began once national programs were underway.

Calculating Program Impact

Determining the causes of fertility declines is difficult. At least eight different techniques can be used to help assess the role of family planning programs in fertility declines. These techniques often address different specific issues, but together they permit a broad view of the impact of family planning on fertility. These techniques are:

(1) **standardization**, or **decomposition**—to determine how much of a decline in birthrates is due to married couples having fewer children and how much is due to changes in the age structure of the population or to older age at marriage. In Thailand, for example, a standardization study shows that virtually all of the 9-point decline in the crude birthrate between 1964 and 1976 was caused by lower fertility among married couples, presumably caused by family planning. Changes in age structure and age at marriage had little effect.

(2) **trend analysis**—to determine whether crude birthrates declined faster after a national program was established than before. In Tunisia, for example, annual birthrates dropped about twice as fast in the decade after the program began than in the seven years before the program.

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(3) **standard couple-years of protection**, (4) **reproductive process analysis**, and (5) **component projection**—all three of which use program statistics to determine how many births were averted by the family planning methods supplied by public or private family planning programs. In Mexico in the late 1970s, for instance, it is estimated that between half a million and one million births were prevented by oral contraceptives and intrauterine devices (IUDs) distributed through the national program.

(6) **prevalence model**—to use contraceptive prevalence levels, as measured through surveys, to calculate the number of births averted, and, if data permit, to identify the source of contraceptive supply. In Sri Lanka in 1981, for instance, survey data suggested that about 60,000 births were averted by contraceptive use. Some 70 percent of the births were averted by methods supplied by the government family planning program.

(7) **experimental design**—to test whether fertility declines faster in a situation with a family planning program than in a comparable situation without one. In Matlab, Bangladesh, for example, analyses showed higher levels of family planning use and lower fertility in areas where contraceptives were distributed than in areas where they were not.

(8) **multivariate areal analysis**—to determine, by looking at different geographic areas, how much of differences in fertility are attributable to family planning programs independently of the socioeconomic setting. Results of these studies vary greatly depending on the number and choice of both program and socioeconomic indicators. An analysis of 16 Indian states, for instance, found that five program factors had a significant effect on acceptance rates, use rates, and birthrates independent of the effect of nine socioeconomic indicators. In contrast, a study of 128 rural counties in South Korea found little program impact, in part because the study used only one program indicator in comparison with six demographic and socioeconomic indicators. Cross-national studies tend to use more program measures, and there is more variation in program effort among countries. These studies generally suggest that family planning programs can lower fertility in a variety of socioeconomic settings.

Cross-National Studies

So far, about a dozen major cross-national studies have compared the effects of family planning programs and socioeconomic indicators on fertility in from 10 to nearly 100 countries. The largest and most recent, by W. Parker Mauldin and Robert J. Lapham, analyzes fertility declines in nearly 100 developing countries between 1965 and 1980. These multivariate analyses find that strong national family planning programs lower fertility independently of socioeconomic setting. The impact is greater where socioeconomic conditions also are favorable. In fact, the combined effect of family planning programs and favorable socioeconomic conditions is not only greater than either alone but also greater than the sum of the two. The strength of this combined effect is due to the complex relationship between socioeconomic conditions and family planning programs. Socioeconomic conditions influence both people's motivation to have smaller families and the family planning program's ability to provide information, supplies, and services. Conversely, family planning programs, by helping to slow population growth, can ultimately improve socioeconomic conditions.

Key Program Elements

The program elements identified in the Mauldin and Lapham study as having the greatest impact on fertility are:

- adequacy of supervision at all levels,
- extent to which staff carry out required tasks,
- extent to which mass media are used,
- extent of postpartum programs,
- availability and accessibility of services and supplies, and
- extent to which evaluation is used to improve the program.

An analysis of some Asian programs suggests that in Asia strong central governments played an important role at the start of programs, but local participation in program activities became increasingly important as the program developed. The analysis also suggests that a separate family planning program may be easier to organize and implement initially, but that integration of family planning with other family health services helps to attract and keep users once the program is established.

Two decades of experience and research make clear that family planning programs can lower fertility. Indeed, they are the most direct and effective single measure that can be taken to lower fertility. Now research can help to identify the most important elements within family planning programs. Research can also suggest how much other development programs, such as women's education, may influence fertility. Ultimately, these efforts all combine to speed attainment of the basic goal of development—a better life for all. **End of Editors' Summary.**

NATIONAL STUDIES

Around the world, 127 countries, representing 94 percent of the world population, provide government support for family planning. Of these, 95 are developing countries. Over half of these developing countries support family planning programs not only to improve maternal and child health, but also to reduce fertility and thus slow population growth (133, 328). These nations consider slower population growth important to achieving development goals and improving the standard of living. In many of these countries fertility has begun to decline (see Table 1). (For a review of the health benefits of family planning, see **Population Reports**, J-27, *Healthier Mothers and Children Through Family Planning*, May–June 1984.)

How much of the fertility decline in individual countries is due to family planning programs? Numerous studies in many countries have addressed this question. Results have varied according to conditions in a country—for instance, program strength and socioeconomic setting—and according to the research method used (see box, pp. J-737–738). In general, however, studies suggest that in many countries family planning programs have significantly reduced fertility.

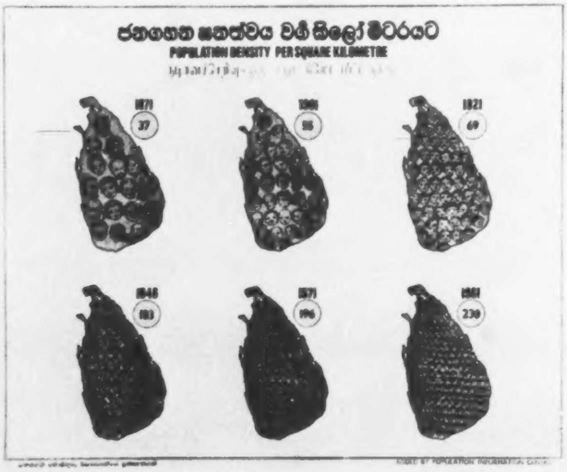
Effectiveness of Early Programs

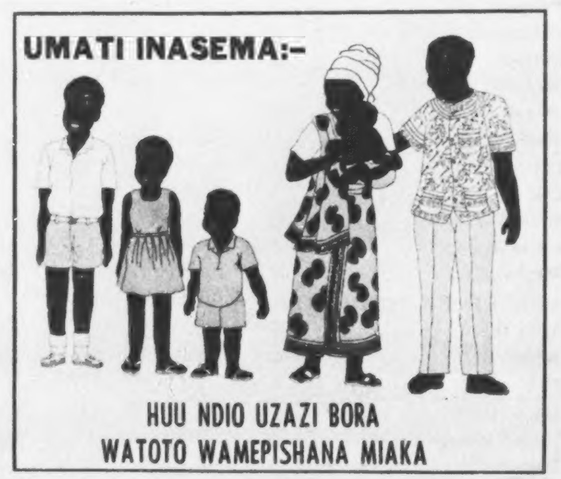
Some of the first evaluations of family planning programs were in **Taiwan, Singapore, Hong Kong**, and **South Korea**, where family planning programs began early, in the late 1950s or early 1960s. These programs generally have been judged effective. Contraceptive use increased and fertility dropped more sharply after the programs began. All four programs have been rated strong on the family planning program effort scale developed by Mauldin and Lapham. The scale is based on the evaluation of 30 program elements (see box, p. J-756). In addition, all four areas experienced steadily improving socioeconomic conditions as the programs became established. Thus they had a favorable setting for program operation. This favorable setting also influenced fertility by encouraging such changes as later marriage and greater availability of family planning services through the private sector.

The **Taiwan** program began in 1963 with a pilot IUD project in the city of Taichung. A matching study of this project found that IUD acceptors had an 80 percent fertility decline after one year compared with a 48 percent decline for others (59). The program expanded island-wide in 1964 and gradually began offering oral contraceptives (OCs), condoms, and voluntary sterilization in addition to IUDs. In 10 years, by 1974, more than half of married women of reproductive age had been program clients at one time or another, and 25 percent currently were clients. Use of contraceptives increased most rapidly among the poor, the poorly educated, and those living in rural areas (96). The crude birthrate (CBR), which had been declining steadily since 1950, dropped from 30 per 1,000 in 1963 to about 23 per 1,000 in 1975 (300). In the late 1970s the CBR remained stable at about 24 per 1,000 (53), and it was estimated at 23 in 1982 (352).

Various studies suggest that the family planning program contributed to this fertility decline. An analysis of the 1964–74 fertility decline found that use of contraceptives provided by the program accounted for almost half of the fertility decline in the 25–29 age group and one-third among those over 30. The remainder of the decline was explained by the use of contraception from other sources, use of abortion, and changes in marriage patterns (151). A trend analysis of fertility decline between 1951 and 1972 found that fertility fell about 28 percent faster after the program became established in 1964 (300). An early areal regression analysis that evaluated the effect of socioeconomic as well as program factors on fertility found that the effect of family planning use was important independently of the influence of socioeconomic factors (111).

In **Singapore** family planning services became available through the Singapore Family Planning Association, a voluntary organization, in 1949. In 1966 the association began to receive government support and by 1979 operated through 44 clinics (55). The CBR in Singapore, which began falling in the late 1950s, dropped from 28.3 per


ජනගහන ඝනත්වය වර්ග කිලෝමීටරයට
POPULATION DENSITY PER SQUARE KILOMETRE
1871
37
1921
69
1946
103
1971
196
1981
230



Some family planning programs emphasize the benefit to the entire nation of limiting population growth. Others emphasize the benefits of family planning to the health of mothers and children. A poster from Sri Lanka dramatizes the impact of rapid population growth over the past century on the population density of the island nation (left). In contrast, a poster from Tanzania, where the main rationale for the family planning program is the health benefits of child-spacing, explains: "This is child-spacing. The children differ in their ages" (right).

1,000 in 1966 to 17.1 in 1980 (233). Most studies (including standardization, standard couple-years of protection, and trend analyses) estimate that the government program was responsible for from 40 to 60 percent of Singapore's fertility decline since 1966 (52, 147, 151, 351). Conditions in Singapore, a thriving city-state with a strong economy, have been especially favorable to fertility declines. Evaluating the independent effect of the family planning program on fertility has been complicated by government support for incentives and disincentives designed to promote lower fertility but not linked to specific contraceptives (89).

Organized family planning services began in **Hong Kong** in the 1930s through a voluntary organization that later became the Family Planning Association of Hong Kong (FPAHK). FPAHK has received government support since 1955. It provides extensive clinical and referral services, backed up by educational efforts and incentives. Since 1973 the government also has provided services directly through maternal and child health (MCH) centers (46).

Fertility has declined steadily in Hong Kong since the late 1950s. The CBR declined from 35 per 1,000 in 1961 to 18 in 1975 (205). At the same time, contraceptive use has increased. In 1976 almost 72 percent of women of reproductive age used some method of contraception, obtained either through FPAHK, MCH centers, commercial outlets, or private doctors. Standardization analysis found that lower marital fertility accounted for over 80 percent of births averted during this period (46). Trend analyses have suggested that the total fertility rate and the crude birthrate in Hong Kong declined more sharply after the family planning program began attracting more new clients in about 1964 (46, 100). As in Taiwan and Singapore, other factors, including a rising age at marriage and overall modernization, also contributed to the fertility decline (46, 205). The large proportion of women of reproductive age in the 1970s and a high rate of immigration in the 1950s and 1960s kept the population growth rate high (165, 205).

In **South Korea** the National Family Planning Program began in 1961. By 1974 the program was supplying 25 percent of married women of reproductive age. The program was especially successful at recruiting women with little education and in poor rural areas (96). The crude birthrate, which had fluctuated between 40 and 45 per 1,000 since about 1900, began to drop around 1960. By 1970–75 it had reached about 29 (167). The total fertility rate dropped from 6.3 in 1955–60 to 3.0 in 1970–75 (167). The 1982 CBR was estimated at 23; the TFR, at 2.7 (352). One analysis suggested that the program was responsible for about 45 percent of the fertility decline between 1963

Table 1. Estimates of Major Demographic Indicators for Selected Countries, 1960–1982

Region & Country (Mid-1982 Population in Millions)	Crude Birthrate (CBR)		% Change in CBR	TFR	Crude Death Rate (CDR)		% Change in CDR	% Average Annual Growth of Population[a]	
	1960	1982	1960–82	1982	1960	1982	1960–82	1960–70	1970–82
AFRICA									
Kenya (18.1)	55	55	+0.2	8.0	24	12	−47.9	3.2	4.0
Mauritius (0.9)	41	26	−36.7	2.9	9	7	−25.8	2.2	1.4
Nigeria (90.6)	52	50	−4.7	6.9	25	16	−35.6	2.5	2.6
ASIA									
China (1,008.2)	39	19	−52.8	2.3	24	7	−71.9	2.3	1.4
Hong Kong (5.2)	35	18	−47.2	2.1	7	5	−20.9	2.5	2.4
India (717.0)	48	34	−28.3	4.8	24	13	−46.8	2.3	2.3
Indonesia (152.6)	44	34	−23.9	4.3	23	13	−43.2	2.1	2.3
Korea, Rep. of (39.3)	43	23	−46.7	2.7	14	6	−53.3	2.6	1.7
Malaysia (14.5)	44	29	−34.1	3.7	15	6	−57.0	2.8	2.5
Pakistan (87.1)	49	42	−13.6	5.8	23	15	−34.3	2.8	3.0
Philippines (50.7)	47	31	−34.0	4.2	15	7	−53.4	3.0	2.7
Singapore (2.5)	39	17	−55.3	1.7	6	5	−16.1	2.3	1.5
Sri Lanka (15:2)	36	27	−25.7	3.4	9	6	−34.8	2.4	1.7
Taiwan (18.5[b])	40	23	−41.8	2.7	7	5	−30.4	3.1	1.9[c]
Thailand (48.5)	44	28	−36.2	3.6	15	8	−48.1	3.1	2.4
LATIN AMERICA & CARIBBEAN									
Chile (11.5)	34	23	−32.8	2.7	13	7	−46.8	2.1	1.7
Colombia (27.0)	47	29	−38.8	3.6	17	7	−57.5	3.0	1.9
Costa Rica (2.3)	48	30	−36.8	3.5	8	4	−51.3	3.3	2.5
Mexico (73.1)	45	34	−25.3	4.6	12	7	−41.5	3.3	3.0
MIDDLE EAST & NORTH AFRICA									
Syria (9.5)	47	46	−1.5	7.2	18	7	−62.1	3.2	3.5
Tunisia (6.7)	47	34	−27.0	4.9	19	9	−51.9	2.0	2.3
DEVELOPED COUNTRIES									
Japan (118.4)	17	13	−25.4	1.7	8	7	−13.2	1.0	1.0
United Kingdom (55.8)	18	13	−27.4	1.8	12	12	+3.5	0.6	0.6
United States (231.5)	24	16	−32.5	1.8	10	9	−9.5	1.3	1.0

CBR = crude birthrate (births per 1,000 population)
CDR = crude death rate (deaths per 1,000 population)

Source: except as noted, World Bank (352)

[a] Includes migration
[b] Data from Population Reference Bureau
[c] 1970–81

Measuring the Impact of Family Planning Programs

At least eight different methods of analysis can be used to measure the demographic impact of family planning programs in a given area. These eight methods are:

- **standardization,**
- **trend analysis,**
- **standard couple-years of protection (SCYP),**
- **reproductive process analysis,**
- **component projection,**
- **prevalence model,**
- **experimental design,** and
- **multivariate areal analysis.**

Each utilizes different types of data, seeks to answer a different question, and evaluates different aspects of fertility change or decline (see Table 2, pp. J-763). Some evaluate the net impact of a family planning program: the impact due to use of contraception supplied by the program minus the effect of substitution (when couples using contraceptives from the private sector switch to program sources). Others evaluate the gross effect, not taking substitution into account (50, 95, 113, 119, 132, 248, 274, 321, 325, 326, 327). None actually measures the extent of substitution or of the countervailing "spill-over effect," in which family planning programs stimulate people to use methods not provided by the program (217).

A **standardization** analysis—often called decomposition—generally determines how much of an observed decline in fertility is due to lower fertility among married couples and how much is due to other changes such as a rising age at marriage or a decrease in the number of married couples in their peak reproductive years (58, 326). It usually is assumed that virtually all change in marital fertility is caused by contraception, including voluntary sterilization, whether provided by a program or other sources. Thus standardization provides a rough estimate of the gross effect of a family planning program plus the effect of contraception available through the private sector.

Another type of standardization analysis more specifically examines the impact of contraception. It uses John Bongaarts' model of proximate fertility determinants based on an earlier model by Kingsley Davis and Judith Blake of 11 intermediate variables that determine fertility (74). Standardization using Bongaarts' model assesses how much of an observed fertility decline was due to changes in each of four factors: use of contraception, proportion married, use of induced abortion, and postpartum infecundability due to breast-feeding (22, 26, 217).

Trend analysis compares trends in birthrates or fertility before family planning programs began and after they are underway. Any difference in the trends—specifically any speeding up in fertility declines—is considered a rough measure of net program impact (139, 190, 217).

Three methods use family planning program statistics. These three—**standard couple-years of protection (SCYP), reproductive process analysis,** and **component projection**—all estimate how many births will be averted through the supplies and services provided by the family planning program. The estimate is produced by comparing the expected fertility of contraceptive users to their fertility if the program did not exist—a hypothetical projection. These methods generally produce an estimate of gross program impact (106, 179, 217, 271, 347, 350). Reproductive process analysis is usually used to evaluate only the impact of IUD use.

The **prevalence model**, a fairly new method, uses contraceptive prevalence survey data to estimate the number of births averted by contraceptive use. If the surveys include questions about source of supply, the prevalence model can distinguish the effect of the program from the effect of contraception obtained from other sources (24, 25, 27, 217).

A study using an **experimental design** compares fertility in a situation with a program to fertility in other, similar situations where there is a different program or no program. Ideally, which areas, groups, or individuals will receive program services and which will not should be selected at random, but this is rarely possible. When it is not, the study is called quasi-experimental. Quasi-experimental studies often involve matching: program clients and others are paired on the basis of similar characteristics such as age and socioeconomic status; then their fertility is compared. Fertility differences indicate the net program effect (91, 217, 344).

Multivariate areal analysis compares data from different geographic areas where program strength, socioeconomic status, and fertility differ. Multiple regression techniques (using a variety of quantified indicators of program strength and socioeconomic setting) are used to evaluate the relative influence on fertility of the family planning program and of socioeconomic factors (114) (see box, p. J-755). Results provide an estimate of the net program effect (217). This technique can be used to compare regions within a country or to compare different countries.

Other methods besides these eight have been used to estimate the impact of family planning programs on fertility. These other methods range from correlation analyses of the simple relationships between specific indicators and fertility changes to complex, computerized simulations that project the response of fertility to hypothetical changes in various family planning and sociodemographic indicators. For example, the Coale-Trussell "m" calculation is a technique frequently used to indicate how a given pattern of age-specific marital fertility differs from the standard age pattern of natural fertility (65, 158). This technique thus indirectly gauges the extent of contraceptive use.

Methodological Issues

Methodological issues arise with every method for analyzing the fertility impact of family planning programs. Each method may encounter specific difficulties involving the validity of assumptions; the avail-

(Continued on next page)

Measuring the Impact of Family Planning Programs

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ability, accuracy, and comparability of data; and the complexity of calculations. More broadly, a variety of general issues apply to most or all of the methods.

Each method relies on specific assumptions about the variables used in the analyses. The validity of the results of course depends on whether the various assumptions are met. For example, the standardization method generally assumes that the factors analyzed are independent of each other; trend analyses assume that nonprogram factors do not change during the period under analysis; and areal regression techniques generally assume that there is a linear relationship between fertility on one hand and various socioeconomic and program factors on the other.

Estimating Potential Fertility

One especially important methodological issue is how to estimate potential fertility—the fertility expected in the absence of family planning programs (23, 25, 248, 321, 327). All eight methods discussed above can be used to estimate births averted, a useful approach when comparing results of various studies. Estimates of births averted require an assumption of potential fertility. Potential fertility can be estimated from previous fertility levels of program clients, fertility levels of the general population, or estimates of natural fertility. Each type of estimate has its problems. For instance, the previous fertility of program clients may be inappropriate since, even after controlling for such factors as age, parity, marital status, and socioeconomic status, these users may differ from the general population with respect to other factors—most importantly, the strength of the desire to limit childbearing. Using natural fertility—fertility in the absence of any deliberate attempt to control fertility—fails to take account of traditional contraceptive methods, contraception available through the private sector, and abortion, any of which may be widely used. Using natural fertility as an approximation of potential fertility leads to an estimate of the gross program effect. Using the other two approximations leads to a rough estimate of net program effect. Recent work on the issue of potential fertility provides up-to-date guidelines for researchers (25, 327).

Procedural and technical problems also can affect study results. Most methods require substantial demographic and/or program data, many of which may be impossible to find or of uncertain accuracy (113, 217, 272, 298). Finding comparable demographic data from various regions almost always poses problems. Measures of program effort often must be developed anew for each study, depending on the data available (217, 272, 325). Even for a single program, obtaining comparable, accurate statistics on acceptance, use, and continuation for a period of years may be difficult (113, 217).

A number of the methods—most notably experimental design and some component projection approaches—are technically difficult to carry out (272). Statistical assumptions must be met, and extensive calculations often are necessary (217). Some technical problems can be partially overcome by the use of computerized models (272).

General Issues

In addition to the problems of assumptions, data quality, and exhaustive calculations, a number of more general questions arise when planning and evaluating studies of program effects. These questions apply to most or all methods of analysis. The most important are:

- How should a family planning program be defined? Should privately run programs be considered along with public programs? Should relatively new projects, such as some social marketing projects, be included as family planning programs (272, 325)?
- When does a program really begin—on the date it was officially established or at some later time when services are being provided to a substantial proportion of the population (113)? How should analyses take into account private family planning programs that operated before a national program began?
- How can substitution effects be separated from the overall program effect? How many program clients actually substituted program sources for nonprogram sources? Similarly, how can the spillover effect be gauged—the number who begin using contraception because the program makes them more receptive to family planning but who obtain contraception elsewhere?
- Can program and nonprogram factors be separated? How much of a fertility decline is due to nonprogram factors? How much is due to the effect of socioeconomic conditions, such as improved health status, educational opportunities, and standard of living, on program functions (217, 271, 272).
- Finally, when should a family planning program be considered successful? Do increases in numbers of clients per staff indicate program success? Should the level of contraceptive prevalence increase by 10, 20, or 30 percentage points? Or should fertility drop by a specific amount (272), or fall to a predetermined level? How should differences in the impact of a program in rural and urban areas or among ethnic groups be considered?

Each method of analysis has problems, and every study needs scrutiny. Nevertheless, in a number of countries, a variety of methods has been used to assess the demographic impact of a family planning program, and most or all have reached similar conclusions. These similar results strengthen the overall conclusion that, in many of these countries, organized family planning efforts have contributed significantly to fertility declines.

and 1975 (129). A component projection analysis concluded that the program was responsible for 31 percent of births averted in 1975 (129). A multivariate areal analysis of 1975 fertility levels found that fertility differences were more closely related to demographic and socioeconomic differences but that the availability of family planning program services also was important (93, 154). Another analysis of 1975 data found that demographic variables (average age of women and average age at marriage) were most closely linked to differences in fertility among 53 villages but that program availability was most closely linked to differences in the practice of birth control (125).

Various Methods Reach Similar Conclusions

For a number of countries with substantial family planning programs, many different analytic methods have been used to assess the impact of the program. Tables 3 through 8 summarize some of these studies according to the method of analysis used.

Standardization studies in 14 countries show that lower marital fertility was the reason for a significant proportion of the decline in fertility in all 14 (see Table 3). It generally is assumed that lower marital fertility is largely due to use of contraception. In all but two studies—in Malaysia and Tunisia—over half of the fertility decline was associated with lower marital fertility. Increases in the average age at marriage (marital status distribution) also accounted for a substantial proportion of the fertility declines in several countries—especially Malaysia, the Philippines, and Tunisia. In most countries changes in age and sex struc-

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A poster from the Singapore Family Planning Association proclaims, "It is not necessary to have many children—two is enough." The strong family planning program has been credited with about half of the 40-percent decline in fertility since 1966.

Table 3. Components of Change in Crude Birthrates as Measured by Standardization Analysis, Selected Studies

Region & Country (Ref. No.)	Period	Observed Change in CBR[a]	Change in CBR Associated with Change in: Proportion WRA[b]	Age Structure of WRA[c]	Marital Status Distribution	Marital Fertility
AFRICA						
Mauritius (108)	1962–72	−13.4	+4.1	+0.2	−6.5	−10.0
Tunisia (137)	1966–75	−7.5	+2.2	−2.7	−5.7	−2.4
ASIA & PACIFIC						
Hong Kong (46, 113)	1964–76	−13.0	+3.6	+0.6	−3.1	−13.1
India (3)	1951–61 1961–71	−3.0	—— −1.0 ——			−2.0
India, Karnataka State (296)	1961–71	−7.6	d	—— −2.4 ——		−5.1
Korea, Rep. of (58)	1960–70	−14.3	—— −0.8 ——		−5.0	−8.5
Korea, Rep. of (154)	1966–75	−8.9	+3.2	−2.9	−2.1	−6.4
Malaysia (7, 113)	1967–76	−4.7	+3.9	+0.9	−2.9	−5.7
Malaysia, West (58)	1960–69	−8.3	—— −0.4 ——		−5.6	−2.3
Malays		−8.0	—— −2.6 ——		−6.6	+1.2
Chinese		−7.0	—— +1.6 ——		−4.1	−4.5
Indians		−13.1	—— −1.5 ——		−8.3	−3.4
Pakistan (276)	1963–65	−6.0	+0.3	−0.9	−1.9	−3.3
Philippines (58)	1960–68	−1.8	—— +1.2 ——		−1.8	−1.2
Sri Lanka (80)	1971–81	−2.4	+2.3	+1.0	−1.8	−3.6
Taiwan (58)	1960–70	−11.6	—— −1.5 ——		−2.7	−7.3
Thailand (161)	1964–76	−6.6[e]	—— +1.3 ——		+1.0	−8.8
		−9.1[f]	—— +1.4 ——		−1.3	−9.2
Thailand (180)	1970–75	−5.4	+0.6	+0.6	−1.8	−4.8
LATIN AMERICA						
Colombia (227)	1974–79	−2.6	+2.0	+0.8	−2.3	−2.7
Costa Rica (79)	1973–81	−0.8	+3.1	+0.7	+1.0	−5.3
Mexico (36)	1974–78	−5.8	+0.1	0.0	+1.5	−7.0

CBR = crude birthrate

[a] Difference between the CBRs observed at the beginning and the end of the study period

[b] Proportion of women of reproductive age (15–49 years) in the total population; Mauritius and Tunisia include women 15–45.

[c] The number of women in each reproductive age group. The age distribution of WRA affects the crude birthrate because fertility declines with age.

[d] Not included

[e] As observed in Surveys of Population Change, 1964–65 and 1974–76

[f] As implied by 1970 and 1980 censuses

Table 4. Change in Crude Birthrate as Measured by Trend Analysis, Selected Studies

Country (Ref. No.)	Periods	Start of Program	Average Annual Decrease in CBR: Before Program	During Program	Difference
Hong Kong (46)	1951–64 1964–76	1964[a]	0.32	2.30	1.98
Malaysia (7)	1957–66 1967–76	1966	0.88	0.58	−0.30
Mauritius (108)	1952–64 1965–77	1965	0.62	0.86	0.24
Mexico (36)	1897–1972 1974–78	1973	0.02	1.36	1.34[b]
Thailand (180)	1961–70 1971–75	1970	0.22	1.19	0.97
Tunisia (137)	1956–63 1965–78	1964	0.32	0.69	0.37

[a] Date when family planning program began to attract more new clients

[b] Results should be interpreted with caution due to length of period measured before program (36).

ture (proportion WRA and age structure of WRA) would have increased rather than decreased fertility.

Trend analyses have found that, in five of six countries, fertility declined more sharply after a national family planning program began than before (see Table 4). The exception is Malaysia, where the CBR declined more slowly during the program period. That was largely due to a reduction in the proportion of women of reproductive age and to an increase in the average age at marriage before the program began. Both factors contributed substantially to the early fertility decline (113). Private family planning groups also were active before the government program began (141).

Some 20 studies of program statistics—component projection and standard couple-years of protection studies—all suggest that, generally, clients of family planning programs avoid births that would have occurred if they had not used contraception (see Tables 5 and 6). These studies usually cannot tell how many might have used contraception from other sources, however (substitution effect). The numbers of births averted by a program varied widely according to the size of the country, the effectiveness of the program, and the duration of program operation.

Estimates of births averted based on prevalence data also have found that family planning programs have had a major impact (see Table 7). In all cases except the govern-

Table 5. Births Averted by Family Planning Programs, as Estimated by Component Projection, Selected Studies

Region & Country (Ref. No.)	Mathematical Model	Year Births Averted	Births Averted	Births Averted per 1,000 WRA[a]
AFRICA				
Mauritius (108)	CPA II[b]	1972	8,459	46
Tunisia (137)	CONVERSE	1971	13,980	13
		1975	26,905	21
		1976	31,651	25
	CPA II	1975	36,311	29
ASIA & PACIFIC				
Hong Kong (46)	CPA II	1976	34,185[c]	32
Korea, Rep. of (154)	CONVERSE	1967	209,185	23
		1970	240,367	23
		1973	309,969	25
		1975	351,428	28
Korea, Rep. of (168)	NA	1960–75	1,656,000	NA
		1975	160,000	13
Malaysia (7)	CPA II	1976	77,325	27
Pakistan (276)	CPA II	1975	299,976	19
Sri Lanka (80)	CONVERSE	1972	28,051	10
		1976	76,180	24
		1981	109,857	30
	CPA II	1971	23,656	9
		1976	65,773	21
		1981	93,256	25
Thailand (152)	CONVERSE	1975	398,900	42
	TABLE 4	1975	256,300–390,200[d]	27–41[d]
Thailand (124)	PROJTARG	1975	501,000	52
Thailand (180)	CONVERSE	1976	952,886	99
		1977	966,956	101
		1978	1,034,686	92
		1979	1,166,255	103
		1980	1,392,223	123
LATIN AMERICA & CARIBBEAN				
Chile (310)	NA	1965–70	140,577	NA
		1965–74	391,135	NA
Colombia (227)	CONVERSE	1974–79	408,000	NA
		1979	78,660	12
	CPA II	1979	67,600[e]	11
Colombia (249)	Kelly's parity technique	1970–72	18,345	4
Costa Rica (79)	CONVERSE	1981	26,868	52
	CPA II	1981	24,851	44
Mexico (36)	CONVERSE	1975	145,591	11
		1977	330,565	25
		1979	572,583	36
	CPA II	1978	330,400	21

NA = not available

[a] WRA = Women of reproductive age. Source for number of WRA is United Nations (324); closest available year used.

[b] Component Projection Approach II: A Model for Desk Calculators (326)

[c] Public and private programs combined

[d] Range of four estimates

[e] Based on 1978 estimated potential fertility

Table 6. Births Averted by Acceptance of Specific Contraceptive Methods Provided by Family Planning Programs, as Estimated by Standard Couple-Years of Protection (SCYP) Analysis, Selected Studies

Country (Ref. No.)	Birth Control Methods	Year Method Accepted	Births Averted	Births Averted by Program per 1,000 WRA[a]
Chile (310)	IUD[b]	1964–74	328,704	NA
		1973	24,879	10
Hong Kong[c] (46)	OCs, IUD, various barriers, injectables, voluntary sterilization	1976[d]	27,531	26
Korea, Rep. of (168)	OCs, IUD, condom, voluntary sterilization	1962–75	1,559,095	NA
		1975	143,130	11
Malaysia (7)	OCs, IUD, voluntary sterilization	1976	52,682	18
Mauritius (108)	OCs	1977	165	1
Mexico (36)	OCs, IUD, voluntary sterilization	1978	905,700	58
Thailand (180)	OCs, IUD, voluntary sterilization	1977	217,471	23
Tunisia (137)	OCs, IUD, abortion, voluntary sterilization	1975	50,810	40

NA = not available; OCs = oral contraceptives; IUD = intrauterine device

[a] WRA = women of reproductive age. Source for number of WRA is United Nations (324); closest available year used.

[b] First insertions only

[c] Public and private programs combined

[d] Some data taken from other years, e.g., IUD continuation rates based on 1972 and 1977 KAP surveys

Table 7. Births Averted by Contraception Supplied by the Family Planning Program and by Other Sources, as Measured by Prevalence Model, Selected Studies

Country (Ref. No.)	Year	Births Averted by: Program	Births Averted by: Other	Births Averted by Program as % of All Births Averted	Births Averted By Program per 1,000 WRA[a]
Colombia (227)	1979	98,800	447,300	17	15
Costa Rica (79)	1982	36,386	54,858	40	65
Malaysia (306)	1976	85,729	46,157	65	30
Mauritius (109)	1972	3,541	386	90	19
Mexico (35)	1978	462,200	505,700	48	29
Pakistan (276)	1975	221,179[b]	51,708	81	14
Sri Lanka (80)	1981	98,505	41,465	70	27
Tunisia (135)	1979	45,835	12,701	78	31

[a] WRA = Women of reproductive age. Source for number of WRA is United Nations (324); closest available year used.

[b] Excludes births averted by voluntary sterilization

ment program in Colombia, contraceptives supplied by the program accounted for between 40 and 90 percent of all births averted by use of contraception in a given year. The result in Colombia probably reflects the availability of contraception through a variety of private sources as well as through the government program (see p. J-747).

Results of areal regression analyses within countries suggest that socioeconomic factors are strongly linked to fertility declines and that program factors may have little independent impact (see Table 8, pp. J-765–767). This is in contrast to cross-national regression analyses that generally have found that program factors have a significant, independent effect on fertility declines (see pp. J-753–759). The difference may be partly due to the fact that, in most national studies, only a few program-related variables were used, whereas in most cross-national studies many program effort indicators were used, incorporated into indices of program effort. Such indices may reflect program effort and achievements more accurately. In addition, in some national studies there may have been too little variation in program factors among areas to create a statistical association between the program and fertility. Also, careful interpretation of study results is important. For example, a regression analysis of US data found that, in the early years of clinic operation, the presence of a family planning clinic in an area was associated with high pregnancy rates among adolescents. This was because clinics were set up especially in areas where the rates were high. After clinics had been in operation for a few years, the relationship was reversed: clinics were associated with lower pregnancy rates (70, 94).

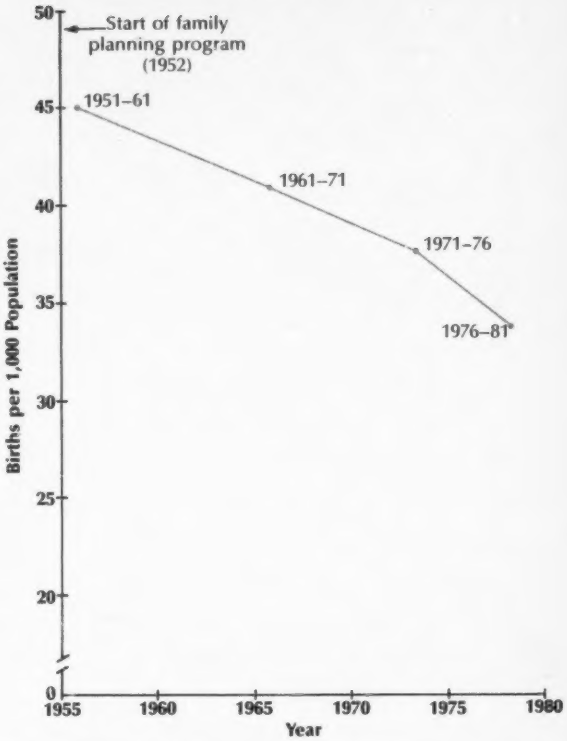
Studies using various methods of evaluation generally suggest that family planning programs have had a significant impact on fertility. The fact that a variety of methods and data lead to similar conclusions strengthens the overall finding. Yet the methods differ in many ways and can produce quite different results. To compare various studies, John Ross converted the results from six methods of analysis into births averted by the family planning program expressed as a percentage of all births averted (271, 272). He found that, for instance, for India in 1971 the range of results was 7 to 16 percent; for Mauritius in 1972, 23 to 45 percent; for Malaysia in 1976, 17 to 24 percent; for Mexico in 1978, 8 to 18 percent. Examining these results, Ross concluded that they agree within a "reasonable range" (271). Others examining the results of various national studies also have concluded that the studies generally confirm the impact of family planning programs (113, 248).

The following sections summarize the impact of eight family planning programs, four in Asia, two in Latin America, and two in Africa. The programs examined are all large-scale efforts that have had government support for a number of years and were initiated with the goal of reducing population growth. Thus in all cases it is important to ask whether these programs have had a demographic impact. Results of different analyses confirm that, to varying degrees, the programs did indeed reduce fertility.

India

India has experienced a slow decline in fertility over the past three decades. Estimates of population size and vital rates vary considerably depending on the source of data. Despite this problem, it is generally agreed that the crude birthrate dropped from over 40 in the early 1960s to about 34 in 1976–81 (17) (see Figure 1). The total fertility rate dropped from just below six in the 1960s to about 4.7 in 1976–81 (17, 245). More than half of the CBR decline probably resulted from lower marital fertility because of contraception, most often male or female sterilization. Changes in age structure accounted for most of the rest of the fertility decline. Contraceptive prevalence and fertility differ widely among the Indian states (see Table 9). Socioeconomic conditions—particularly as reflected in female education and literacy levels, infant mortality rates, and the extent of women's participation in the work force—appear to be strongly related to these differences among states.

Figure 1. Trends in Crude Birthrate in India, 1950s to 1970s



Source: 1951–61 from Rele (262); other points from Bhat et al. (17). All are intercensal estimates or 5-year estimates.

Officially established in 1952, the Indian family planning program is the oldest national program in the world. The program has experienced many ups and downs during its more than 30 years of existence. At first, activities generally were limited to research and training and concentrated on voluntary sterilization. In 1965–66 the program sponsored widespread IUD insertion, but reports of side effects soon created a backlash. The annual number of IUD insertions dropped and did not reach similar levels until the 1980s. In 1968 the *Nirodh* social marketing program was started to sell condoms at a subsidized price through established retail outlets (340). Hormonal contraceptives are not readily available.

Between 1971 and 1973 sterilization camps were organized throughout the country but discontinued later. In 1976, however, as part of Prime Minister Indira Gandhi's "Emergency" (a broad program intended to address economic and political problems), sterilization camps were set up again. In response to increased pressure from the central government, some states in turn pressured those in charge of recruiting to meet quotas and offered a variety of incentives to men who would have vasectomies. Over eight million male and female sterilizations were performed in 1976–77, compared with between one and three million in each of the previous nine years (340).

The "Emergency" seriously harmed the Indian family planning program. Many of the promises made to sterilization acceptors were not honored, and coercion was reported in some states (340). Distrust of family planning spread. In 1977 a new government ended pressure for sterilization.

By the early 1980s the program had gained back much of the ground lost. An estimated 28 percent of Indian couples were using effective family planning (2, 340). In 1982 program strength was rated as moderate on the Mauldin and Lapham program effort scale. The strongest program component was policy and stage-setting activities. Scores on aspects of the program related to availability and accessibility totaled 13.9 of a possible 24 points (199).

The few large-scale analyses that have been conducted suggest that, despite problems, the family planning program has significantly speeded India's fertility decline. A standardization analysis of the 3-point decline in the crude birthrate between 1951 and 1971 found that reduction in marital fertility alone would have decreased the CBR by two points. The remaining decrease was due mostly to a reduction in the proportion of women of reproductive age. Overall, changes in marital status distribution had little effect on fertility. The proportion of women age 15–19 who were married decreased, but the proportion of older women who were married increased (3). The average age at marriage remains low for the nation as a whole, although there have been increases in some states.

Table 9. Selected Demographic, Health, and Socioeconomic Indicators, All India, 13 Indian States, and the Territory of Delhi, 1970–81

Place (1981 population in millions)	Crude Birthrate		Contraceptive Use, 1980[b]	Infant Mortality Rate, 1974–76	% of Females Literate, 1981
	1970–72	1976–79[a]			
All India (683.8)	37	36	23	132	25
STATES					
Andhra Pradesh (53.4)	35	34	27	119	21
Bihar (69.8)	32	38[c]	12	NA	14
Delhi (union territory) (6.2)	32	27[d]	36	58	53
Gujarat (34.0)	40	37	34	136	32
Karnataka (37.0)	32	28	24	82	28
Kerala (25.4)	31	26	30	55	65
Madhya Pradesh (52.1)	39	38	21	142	15
Maharashtra (62.7)	32	28	36	88	35
Orissa (26.3)	36	33	24	142	21
Punjab (16.7)	34	31	25	101	34
Rajasthan (34.1)	41	34	10	NA	11
Tamil Nadu (48.3)	31	30	28	109	34
Uttar Pradesh (110.9)	45	40	11	185	14
West Bengal (54.5)	NA	31	22	NA	30

NA = not available

[a] From Sample Registration System, corrected by state-specific incompleteness estimate for 1971–72

[b] % of eligible couples effectively protected by contraception, December 1980. Effective protection is calculated by multiplying the percentage of eligible couples using a specific method by that method's use-effectiveness. Contraceptive prevalence rate not specified.

[c] Unadjusted

[d] CBR for 1976–78

Source: Bhat et al. (17), Visaria and Visaria (340)

Two regression analyses comparing the major Indian states suggest the importance of both socioeconomic setting and program strength to differences in program utilization and in fertility. The first analysis, covering 15 large states, studied the relationship of socioeconomic and program factors to acceptance rates for 1962–72. The analysis concluded that, of the variance accounted for by the socioeconomic and program indicators, socioeconomic factors accounted for just over half and program factors accounted for just under half. As much as half of the influence of socioeconomic indicators was indirect—that is, favorable socioeconomic conditions made program efforts more effective. In more developed states, such as Tamil Nadu, lower-than-average program inputs produced higher-than-expected acceptance rates. Conversely, in less developed states, such as Jammu and Kashmir, higher-than-average program inputs produced lower-than-expected acceptance rates (295).

A second analysis, involving 1971 data from 16 states, found that program factors had a significant effect on acceptance and birthrates independent of socioeconomic setting. For instance, the independent effect of program factors explained 21 percent of the variance in program acceptance rates and 8 percent of the variance in birthrates. The combined effects of program factors and socioeconomic setting were 97 percent for acceptance rates and 88 percent for birthrates. In all analyses interaction between socioeconomic and program factors accounted for about 60 to 70 percent of the combined effect (155).

Kerala and Karnataka are two states in southern India where changes in socioeconomic conditions plus the availability of family planning have combined to create sharp fertility declines. In Kerala, the CBR dropped from about 37 per 1,000 in 1966 to about 26 per 1,000 in 1978. Although Kerala remains a poor state, literacy levels are high, life expectancy is above average, and the infant mortality rate is the lowest in India (see Table 9). The average age at marriage for women in this predominantly Christian state is generally higher than in the rest of India. The contraceptive use rate is above average. Between 1975 and 1980 as many as 30 percent of eligible couples used contraceptives (356). In some districts in 1982, prevalence was as high as 52 percent (2). About two-thirds of contracepting couples rely on male or female sterilization. The remaining third are equally divided between IUD users and users of other reversible contraceptives. An analysis of 1968 and 1978 age-specific birthrates concluded that about 60 percent of Kerala's fertility decline was due to socioeconomic factors—working mostly through the increase in the average age at marriage—and about 40 percent was due to the family planning program (356).

In Karnataka the family planning program may have played an even greater role in the recent fertility decline. The CBR fell from about 40 per 1,000 in the 1960s to about

An Indian health worker enrolls a new client in the family planning program. Started in 1952, the family planning program has contributed to fertility declines in India over two decades. (US AID)

28 per 1,000 in the late 1970s. Although health status in Karnataka is good in comparison with much of the rest of India, the state has not achieved the same educational level as Kerala. According to an in-depth anthropological study of one region of Karnataka, however, a variety of factors, such as population pressure on the land, costs of education, and job shortages, have made small families more desirable (38, 39). At the same time, the family planning program in Karnataka is strong. As of 1980 about 33 percent of eligible couples were using contraception, mostly voluntary female sterilization. The ready availability of family planning and socioeconomic conditions that increased the demand for small families probably contributed about equally to Karnataka's fertility decline (38, 39).

Although the Indian family planning program has made gains over the past few decades, the country's population continues to grow at a steady rate—about 2 percent per year. With a population of almost 700 million recorded in the 1981 census (17), this growth means India's population could reach one billion by the year 2000. The relatively poor socioeconomic setting in India has made it difficult to promote family planning in many areas (78, 142, 339). In addition, as experts have noted,

> . . . given the inadequate communication network and the rigid administrative organization, it is quite difficult to coordinate, monitor, evaluate, and provide logistical support to the nearly 100,000 persons employed in the Indian family planning program. (339)

Indonesia

Indonesia often is cited as an example of a predominantly rural and relatively poor country with a successful family planning program (97, 99, 127, 202, 311). The government program officially began in 1969. Contraceptive prevalence in the two most densely populated islands, Java and Bali, increased from virtually nothing in the 1960s to about 24 percent in 1976 and perhaps as high as 30 percent in 1980. Knowledge of any contraceptive method increased from 25 percent in 1968 to 80 percent in 1979. During the same period, fertility declined sharply. The crude birthrate, which began falling in the early 1960s, dropped from over 40 in 1965 to an estimated 30.8 for 1980–85 (127, 202, 324) (see Figure 2). Studies suggest that this fertility decline was caused largely by use of contraceptives, mostly supplied by the government program. Declines in the duration of breast-feeding and postpartum abstinence would have increased fertility had contraception not been used. Changes in marital patterns had little effect.

Definitions of Demographic Terms

Crude birthrate (CBR). The number of live births per 1,000 population in a given year. The CBR depends on both the level of fertility and the age distribution of the population. All else equal, the larger the proportion of the population in high-fertility age groups, the higher the CBR.

Total fertility rate (TFR). The average number of children that would be born alive to a woman during her lifetime if she were to pass through her childbearing years conforming to the age-specific fertility rates of a given year. The total fertility rate equals the sum of the age-specific fertility rates where age is given in single years. The TFR is a more refined measure than the CBR because the TFR is independent of the age structure of the population.

General fertility rate (GFR). The number of live births per 1,000 women age 15–49 in a given year.

General marital fertility rate (GMFR). The number of live births per 1,000 married women age 15–49 in a given year.

Age-specific marital fertility rate (ASMFR). The number of live births per 1,000 married women of a specific age in a given year.

Age structure. The composition of a population described in terms of the number of persons in each age category.

Marital status distribution. The composition of a population described in terms of the number or proportion of married persons in the population. In some countries persons living in union are included.

Average annual growth rate. The rate at which a population is increasing (or decreasing) in a given year or years, expressed as a percentage of the base population.

Natural fertility. Reproductive performance in the absence of contraception, induced abortion, or any form of intentional birth control.

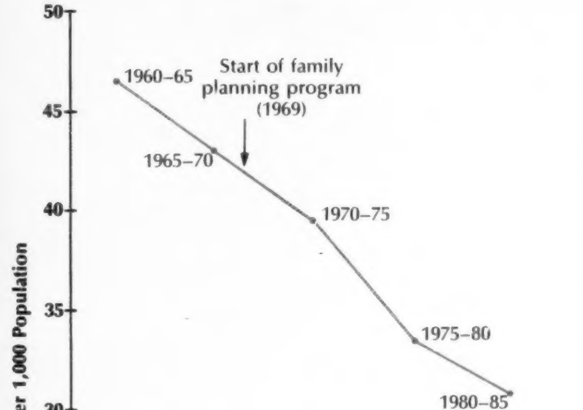
Sources: Haupt and Kane (110), Palmore and Gardner (234), United Nations (324), Van de Walle (334), World Bank (352).

Support for family planning began in 1967 with President Suharto's "New Order" government. In 1970 the National Family Planning Coordinating Board (BKKBN) was established to supervise all government family planning activities. By the late 1970s more than 40,000 village distribution centers, run by local leaders, had been established. Also, the program was officially expanded to the 21 provinces outside Java and Bali. The overall goal of BKKBN is to halve 1971 fertility levels by 1990–to a TFR of less than three and a CBR of about 22 (127, 211, 302). In 1982 the program was rated strong on the Mauldin and Lapham program effort scale, although the availability and accessibility rating remained relatively low since many areas of the country did not yet have access to services (199).

According to a standardization analysis, contraceptive use was the most important proximate cause of the Indonesian fertility decline. The analysis, based on the concept of proximate determinents of fertility developed by John Bongaarts (22, 26), separated the observed drop in total fertility of about 0.9 between the late 1960s and the late 1970s into four proximate determinants: proportion married, contraceptive use, prevalence of induced abortion, and postpartum infecundability. According to the analysis, increasing contraceptive use by itself would have decreased the total fertility rate by between 1.5 and 2.0. The falling duration of postpartum infecundability would have raised total fertility by between 0.5 and 0.8. The effect on the proportion married of rising age at marriage was counterbalanced by the falling rates of divorce and widowhood. Induced abortion had little effect since it is relatively rare in Indonesia (202).

The family planning program provided most of the contraceptives used during this period of fertility decline. According to 1976 World Fertility Survey (WFS) data from Java and Bali, over 80 percent of Indonesian contraceptors use modern methods—pills, IUDs, and, less commonly, condoms. Exceptions were the two major cities, Jakarta and Yogyakarta, where substantial proportions of users reported using traditional methods such as herbs or abstinence (127). Modern methods are supplied largely by the family planning program. Oral contraceptives and IUDs are difficult to obtain through the private sector. Both require a visit to a physician, or, for an IUD, a qualified midwife. Physicians and midwives are in short supply in Indonesia, especially in the rural areas, where most family planning users live (311).

Figure 2. Trends in Crude Birthrate in Indonesia, 1960s to 1980s



Source: Estimated crude birthrates for 5-year intervals, from United Nations (324)

A worker in the Indonesian family planning program talks with a potential client. The program has been the main source of supply for the increasing number of family planning users. (US AID)

The timing of the fertility decline in Java and Bali also suggests that the family planning program had a major impact. According to estimates from WFS data, the total fertility rate of Java and Bali slowly decreased from about 5.5 in the early 1960s to about 5.0 in the early 1970s. After the family planning program gained strength in 1972, the TFR dropped another half point in just a few years—to about 4.5 by 1975 (302).

Although specific results vary, and some have been questioned (127, 202), surveys show that fertility has declined most sharply in provinces where the family planning program is strongest. For instance, the program has been particularly successful in Bali, mainly because of the involvement of *banjar* (village) leaders, who recruit and follow up program clients (127). According to WFS and BKKBN estimates, between 40 and 50 percent of Balinese married women age 15 to 44 used contraceptives in 1976–77 (127, 211). By the early 1980s this figure may have risen to over 60 percent (209, 211). At the same time, fertility has dropped more sharply in Bali than in other areas (see Table 10). The total fertility rate dropped by about 30 percent between the late 1960s and 1976—from about 5.8 to between 3.8 and 4.3. In contrast, during the same periods in Central Java, where the program has been less vigorous, contraceptive prevalence was estimated at between 20 and 30 percent and the TFR fell only about 17 percent—from about 5.3 to about 4.4 (127).

Of course, cultural and socioeconomic differences have influenced the success of the program. Bali is predominantly Hindu, whereas Java is predominantly Muslim. Muslim women are reluctant to visit male health providers and thus generally do not use IUDs—the most widely used method in Bali (127). One study of varying levels of contraceptive use found that average educational achieve-

Table 10. Fertility Change and Contraceptive Prevalence in Six Indonesian Provinces in Java and Bali

Province	Total Fertility Rate			% MWRA Using Contraception, 1976*	
	Late 1960s	1976	% Change	All Methods	Modern Methods
Java/Bali total	5.3	4.5	−15.1	28.0	23.4
Jakarta	5.4	4.5	−16.0	29.1	19.9
West Java	6.0	5.3	−11.7	17.4	14.9
Central Java	5.3	4.4	−17.0	29.8	26.0
Yogyakarta	4.7	4.4	−6.4	43.1	19.9
East Java	4.6	3.9	−15.2	33.8	29.2
Bali	5.8	3.8	−34.5	39.1	38.3

MWRA = married women of reproductive age
*According to 1976 World Fertility Survey
Source: Hull et al. (127)

ment and population density were better predictors of contraceptive use than strength of family planning efforts as measured by the number of clinics, administrative personnel, and field workers (153). But another study found that in regions where the family planning program was most active (as measured by hours of clinic operation per 1,000 married women age 15 to 44), contraceptive use was greatest. Program strength was more important than such factors as education, parity, or standard of living (99).

The family planning program clearly has increased contraceptive use in Indonesia, especially among those generally thought to be most difficult to reach—the rural, undereducated poor (99). As Ronald Freedman and colleagues point out, this is largely due to strong political support for the program and local participation in recruiting and following up clients—in part made possible by the close-knit structure of communities in many areas of Indonesia (99). In addition, such underlying factors as increasing population pressure, rising consumer aspirations, and increasing expenses for education have raised the costs of children and thus heightened demand for contraception (97, 202).

Thailand

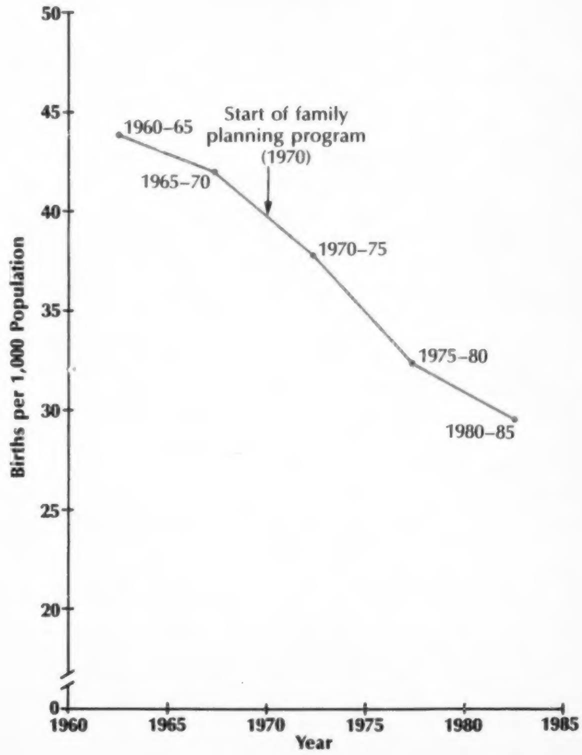
Between the late 1960s and early 1980s fertility in Thailand fell by almost 40 percent—one of the most rapid fertility reductions in the world. The crude birthrate, which was about 44 per 1,000 in the early 1960s, fell to about 28 per 1,000 by 1982 (see Figure 3). The total fertility rate fell from a high of over 6 in the early 1960s to an estimated 3.6 in 1982 (180, 352). Considerable demographic and program-related evidence suggests that the National Family Planning Program of Thailand was a major factor in this rapid decline. Improving socioeconomic conditions during the same period contributed to program impact (164).

Although the national program was not officially established until 1970, training activities began earlier. By 1970 personnel had already been trained in most provinces, and an extensive rural program was largely in place (159, 162). In cities, family planning services were already available at government hospitals (269, 270). In 1982 the Thailand program received a moderate overall rating on the Mauldin and Lapham program effort scale. The availability and accessibility of contraception received a relatively high rating—19.5 of a possible 24 points (199).

As the program developed, contraceptive use increased dramatically. The percentage of married women of reproductive age using contraception rose from 14 percent in 1969–70 to 37 percent in 1975 and 58 percent by 1981 (see Table 11). The increase was particularly marked in rural areas, where the national program concentrated its efforts. There, use of contraceptives rose from 11 to 57 percent between 1969 and 1981 (161). Nationwide, in 1981, three of every four contracepting women obtained supplies or services from government outlets; among rural women four of every five did so (161). Oral contraceptives are the most popular method, followed by female voluntary sterilization, injectables, and the IUD. Private-sector programs, such as Community Based Family Planning Services (CBFPS), also have increased contraceptive use in both rural and urban parts of Thailand (170, 336, 337). In the rural province of Chiang Mai, fertility fell even more sharply than in Thailand as a whole. The CBR dropped from over 40 in 1960 to about 20 in 1972. Much of this decline has been attributed to use of contraception—mostly injectables—supplied by the government program and by the McCormick Hospital Family Planning Program, based in Chiang Mai city (236).

Most of the fertility decline that occurred between the late 1960s and mid-1970s was due to lower marital fertility, largely resulting from contraceptive use. A standardization analysis of the estimated 9.1 point decline in the crude birthrate between 1964 and 1976 indicated that the

Figure 3. Trends in Crude Birthrate in Thailand, 1960s to 1980s



Source: Estimated crude birthrates for 5-year intervals from United Nations (324)

Table 11. Knowledge and Use of Specific Modern Contraceptive Methods,[a] as a Percentage of Currently Married Women Age 15–44, by Rural/Urban Residence, Thailand, 1969–1981

	Knowledge			Ever-Use[b]			Current Use[b]		
Year	**Rural**	**Urban**	**Nat'l.**	**Rural**	**Urban**	**Nat'l.**	**Rural**	**Urban**	**Nat'l.**
1969–70	48	74	53	14	38	18	11	31	14
1972–73	NA	NA	NA	29	55	33	23	43	26
1975	86	92	87	49	66	51	35	49	37
1978–79	97	98	98	70	NA	73	51	63	53
1981	97	98	97	78	86	79	57	64	58

NA = not available

[a] OCs, IUD, condom, injectables, male and female voluntary sterilization

[b] Standardized for age distribution of currently married women as reported in 1970 census

Sources: Knodel and Debavalya (159), Kamnuansilpa et al. (146), Knodel et al. (161)

drop in marital fertility in itself would have lowered the birthrate by 9.2 points. Changes in marital patterns would have lowered it by 1.3 points, and changes in the proportion of women of reproductive age and their age structure would have increased the birthrate by 1.4 points (161). An analysis of data from 1970–75, when the CBR declined 5.4 points, found that reduced marital fertility accounted for 4.8 points, and changes in marital patterns accounted for most of the rest (180). A standardization analysis of the 1968–78 decline in total fertility rate, using John Bongaarts' proximate fertility determinants, indicated that contraceptive practice alone would have lowered the TFR by 2.5 points of the total decline of 2.7. Changes in the proportion of women married and greater use of induced abortion contributed slightly to the TFR decline, while shorter periods of breast-feeding would have slightly increased the TFR (161).

The pattern of Thailand's fertility decline also suggests that the family planning program played a major role. Total fertility declined slowly throughout most of the 1960s. Between the late 1960s and 1974, however, estimated total fertility fell by about one-third, and recent evidence suggests a continuation of this decline (161, 212). Similarly, between 1961 and 1970 the crude birthrate fell about 0.2 points per year. Between 1971 and 1975, after the program began, the decline was much sharper: about 1.2 points per year. The drop in fertility that began in the late 1960s was even more rapid in rural areas than in urban areas. By the early 1980s the once-pronounced difference between urban and rural fertility had been greatly reduced (161).

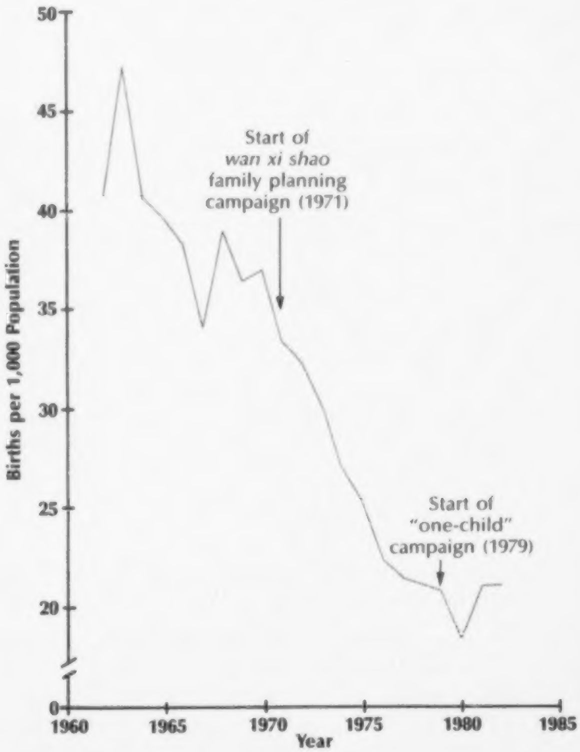
Studies of program data confirm the impact of the family planning program on fertility (124, 152, 180). Estimates of the number of births averted by the family planning program in 1975 range from about 256,000 to about 501,000 depending on the methodology used and on assumptions concerning potential fertility and continuation rates (152). These estimates suggest that births averted by the family planning program accounted for close to 80 percent of the fertility decline during that period (124, 152, 180). Estimates of the number of births averted by the program between 1975 and 1980 are higher, ranging from 200,000 to over 1,000,000 each year (180).

The success of Thailand's family planning program can be attributed to both program and socioeconomic factors. The program has involved all levels of health personnel and has used a large part of its resources to provide comprehensive services to rural areas. A range of contraceptive methods has been available to users, with oral contraceptives the most widely distributed. At the same time socioeconomic conditions have been improving, and communication and transportation services have spread. These changes have led to rising aspirations for children's education and for consumer goods, both of which make small families more desirable (163).

The People's Republic of China

Between the 1960s and the late 1970s, China experienced the largest fertility decline of any developing country to date. The crude birthrate dropped from over 40 per 1,000 in the early 1960s to about 20 per 1,000 in the late 1970s (see Figure 4). The total fertility rate, roughly representing completed family size, dropped from over 6.0 in the early

Figure 4. Trends in Crude Birthrate in China, 1962–1982



Source: Coale (62), based on National One-per-Thousand-Population Sample Survey, 1982

1960s to less than 3.0 in the late 1970s (62). In the early 1980s fertility increased slightly. In 1982 the CBR was about 21 per 1,000 and the TFR was about 2.7 (62). Although detailed analyses have not yet been carried out, it is generally agreed that the government's vigorous birth planning campaigns, which have promoted small families and later marriage, have been largely responsible (56, 57, 150). Press reports indicate that coercion also has been applied in some areas especially to enforce the "one-child" campaign that began in 1979 (150, 360).

The fertility decline in China took place without significant gains in many socioeconomic indicators. Literacy levels, education levels, and the proportion of the population in nonagricultural occupations have remained low. Health conditions, however, have improved markedly. Between 1960 and 1982 the infant mortality rate dropped from 165 to 67 per 1,000, and life expectancy at birth increased from 41 to 67 years, approaching the life expectancy in European and North American countries of between 72 and 75 years (352). This improvement in health, especially infant and child health, may have contributed to the success of the birth planning program.

The government first began promoting family planning in 1956. Impact was limited until 1970, however, because political and economic upheavals caused by the Great Leap Forward and the Cultural Revolution disrupted program efforts. In 1971 the highly effective *wan xi shao* ("later, longer, fewer") campaign began, urging later marriage (not before ages 28 for men and 25 for women in cities, and 25 and 23 in rural areas), longer intervals between births (at least three years), and fewer children (two or three at most). Contraceptive supplies and services and induced abortion were made widely available through the primary health care program that reaches most of the country. To motivate people, the government used both an extensive communication campaign appealing to patriotic sentiments and social pressure exerted by community organizations. By the late 1970s, contraceptive prevalence had reached about 70 percent (56) and fertility had dropped dramatically (see Figure 4). The program was rated strong in 1972 and in 1982 on the Mauldin and Lapham program effort scale (199).

In 1979 the Chinese government began to implement the current "one-child" campaign, declaring that further measures were necessary because of the large number of women who would be reaching reproductive age during the 1980s and 1990s (57). The goals of the program are to limit the total population to 1.2 billion by the year 2000 and thus speed modernization (252). Substantial incentives are offered to couples who pledge to have only one child, and penalties are imposed on couples who break their pledge or who have more than two children (56, 57). In 1982, of the 21 percent of mothers of reproductive age who had one child, 42 percent held one-child certificates indicating that they had pledged to have no more children. Overall, 6 percent of all women of reproductive age hold one-child certificates, 14 percent in urban areas and 4 percent in rural areas (56). Several reports suggest that efforts to implement the one-child campaign have led to abuses. Officials have pressured pregnant women to abort unauthorized pregnancies even in the later months. At the same time, some couples who strongly desire sons have resorted to infanticide of unwanted daughters (56, 360).

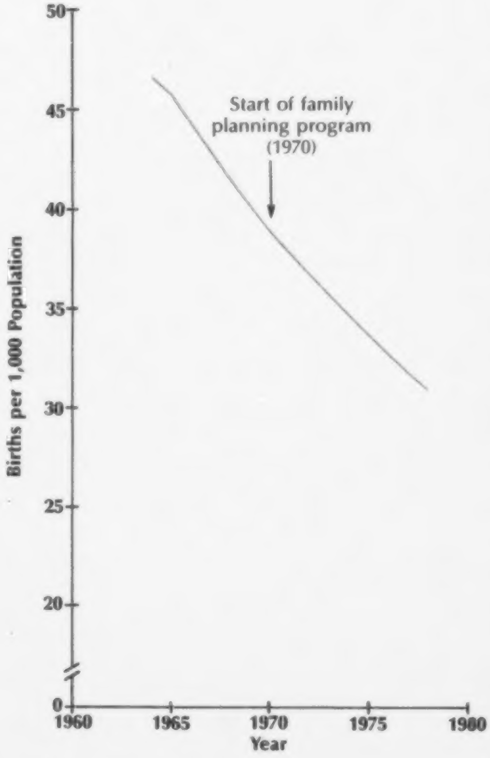
A regimented birth planning system that requires couples to obtain authorization from community leaders before conceiving a child and to terminate most second, third, or other unauthorized pregnancies would not be acceptable in other countries (57, 359). Nevertheless, lessons can be learned from other aspects of the Chinese program, such as increasing knowledge of contraception, making a wide range of methods available, stimulating community awareness of population pressures, providing family planning services along with other health services, emphasizing more equal roles in society for men and women, and encouraging later marriage (57, 359).

Colombia

Since the mid-1960s Colombia has experienced a rapid fertility decline (184, 227, 246). Fertility fell by over 30 percent between 1964 and 1978. The total fertility rate dropped from about 6.6 to about 4.2. The crude birthrate dropped from about 47 to about 31 (357) (see Figure 5). Family planning, through public programs, private voluntary efforts, and private sources, has been a major cause of the fertility decline. A rising average age at marriage also has reduced fertility considerably. The socioeconomic setting in Colombia is favorable and contributed to the effectiveness of the family planning program.

The family planning programs in Colombia are administered by the Colombian Association of Medical Schools (ASCOFAME); the Ministry of Health; and a private organization, the Colombian Association for Family Welfare

Figure 5. Trends in Crude Birthrate in Colombia, 1964–1978



Source: Zlotnik (357)

(PROFAMILIA), an affiliate of the International Planned Parenthood Federation. ASCOFAME has been running family planning projects since 1966. PROFAMILIA opened its first clinic in Bogotá in 1965 and had set up over 60 urban clinics by 1975. In 1971 PROFAMILIA started a community-based distribution program for rural areas and, in 1973, a social marketing program to sell oral contraceptives, condoms, and spermicides (5). The Ministry of Health began limited family planning activities in the late 1960s and by 1973 offered family planning services in most government hospitals and health centers (184, 227, 230, 246, 264, 283). As of 1982 the government family planning program was rated strong on the Mauldin and Lapham program effort scale (199).

The growth of organized family planning programs was matched by the commercial sector. By 1965 pharmacies had begun to dispense nonprescription oral contraceptives. By 1969 annual pharmacy purchases of oral contraceptives had reached 1.1 million cycles; by 1975, 2.8 million cycles; and by 1980, 3.5 million cycles (169, 243, 246). Private physicians had begun to offer family planning services by 1965 (227, 230).

As family planning methods became more available, more couples began to use them. Contraceptive prevalence among married women of reproductive age rose from approximately 29 percent in 1969 to approximately 46 percent in 1978. Over 80 percent of the contraceptors used modern methods, mainly oral contraceptives (229, 246).

Various studies confirm that the major immediate cause of the fertility decline in Colombia was a drop in the fertility of married couples, largely due to increased contraceptive use. A standardization analysis of the drop in the crude birthrate of about 2.6 points between 1974 and 1979 found that the reduction in marital fertility by itself would have reduced the birthrate by 2.7 points. Decreases in the proportion married would have reduced the birthrate by 2.3 points. Together, these two changes more than compensated for changes in age structure that otherwise would have increased the birthrate substantially. An analysis of fertility differences among regions in Colombia found that contraceptive use was more important to those differences than proportions married, prevalence of induced abortion, or length of breast-feeding (228).

UN Studies on Measuring Program Impact

For 10 years the United Nations Population Division, working closely with the International Union for the Scientific Study of Population (IUSSP), has promoted research evaluating the effects of family planning programs on fertility. The results of this research appear in four UN publications: *Methods of Measuring the Impact of Family Planning Programmes on Fertility: Problems and Issues* (321), *The Methodology of Measuring the Impact of Family Planning Programmes on Fertility, Manual 9* (326), *Evaluation of the Impact of Family Planning Programmes on Fertility: Sources of Variance* (325), and *Studies to Enhance the Evaluation of Family Planning Programmes* (327). These documents are a major source of information on both methodology and findings and were used extensively in preparing this report.

Studies also confirm that the various government, commercial, and private sources of family planning all have played substantial roles in the fertility decline. In 1978, 59 percent of contraceptors obtained their family planning methods from a family planning program, either public or private. Forty-one percent obtained their method from other private sources, mostly drugstores. A component projection study credits organized family planning programs, both public and private, with 56 to 70 percent of the births averted between 1970 and 1975 (184). Based on service statistics, a comparison of the impact of the government-sponsored family planning programs and the PROFAMILIA program found that between 1965 and 1975 each provided virtually equal standard couple-years of protection from pregnancy—1,035,800 by PROFAMILIA and a total of 1,035,000 by the Ministry of Health and ASCOFAME (184).

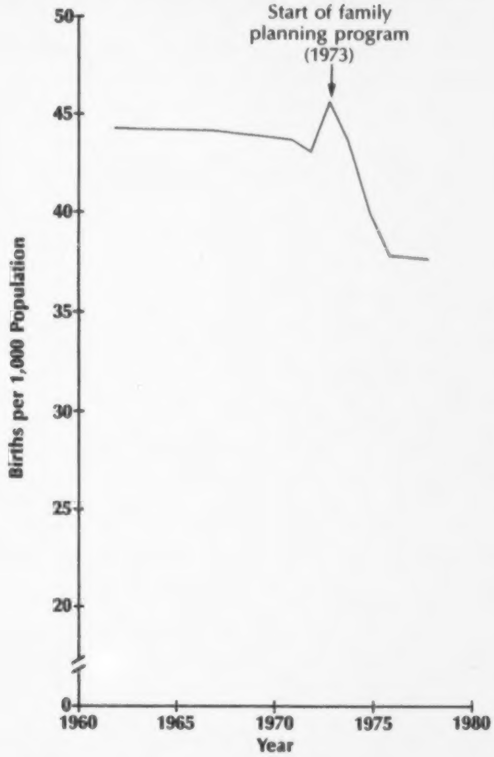
Fertility has declined most sharply where the programs have been most active, further suggesting the importance of the family planning programs to the fertility decline. One study defined the strength of family planning program activity as the percentage of married women of reproductive age protected from pregnancy through a program. In Meta, the *departamento* (state) where that percentage was largest, the total fertility rate dropped from 7.9 to 4.9 between 1964 and 1975, representing a reduction in completed family size of three children. In contrast, in the *departamento* of Boyacá, where the percentage of women protected through a family planning program was relatively small, the total fertility rate dropped from 6.7 to 5.4, a reduction of slightly more than one child (185).

The combination of rapid development and strong family planning programs in Colombia largely explains the rapidity of the recent fertility decline. A multivariate analysis of 22 *departamentos* examined the effect on fertility decline of 12 socioeconomic and 4 family planning indicators as measured in 1973. Two socioeconomic indicators—the proportion of the population living in urban areas and the percentage of households with access to public utilities—were most important. Public family planning program acceptance rates had a smaller but still statistically significant impact. Surprisingly, the PROFAMILIA program was associated with an increase in the fertility rate. This result occurred because contraceptors in high-fertility areas tended to use PROFAMILIA services, while those in low-fertility areas used government services (227). Overall, the increased use of family planning in Colombia can be attributed to the complementary factors of increasing availability of family planning methods and increasing demand for family planning encouraged by social changes such as growing participation of women in the labor force, a rising female education level, economic growth, and urbanization (204, 246).

Mexico

Fertility in Mexico has been falling rapidly. Although estimates vary, both the total fertility rate and the crude birthrate fell at least 20 percent between 1970 and 1980 (187), and this trend appears to be continuing (204). Mexico has developed considerably over the last three decades, both socially and economically. Despite improving socioeconomic conditions, however, fertility rates remained fairly constant until roughly the mid-1970s (144, 208) (see Figure 6). Birthrates began to fall because of declining

Figure 6. Trends in Crude Birthrate in Mexico, 1962–1978



Source: Cabrera and Navarro (36)

fertility among married couples, made possible to a great extent by increased contraceptive use. Both the national family planning program and private-sector suppliers of contraception have contributed substantially to the fertility decline. Changes in the proportion of women married and changes in the age structure of the population would have slightly increased the number of births.

Mexico is served by a network of public and private family planning programs. Private agency programs started in 1959. The government program began in 1973 and in 1982 was rated moderate on the Mauldin and Lapham program effort scale (36, 199, 208, 267).

The commercial sector also has been an important supplier of family planning methods and services in Mexico. Oral contraceptives have been available without prescription in pharmacies since the early 1960s (208). By 1968 annual pharmacy purchases of oral contraceptives reached 2.1 million cycles; by 1975, 6.2 million; and by 1980, 11.5 million (169, 243). The commercial sector is also a major supplier of injectables, condoms, and spermicides (103).

Use of modern family planning methods has grown rapidly in recent years as services and sources of supply have expanded. A study based on service statistics and survey data found that, among married women of reproductive age, use of modern methods almost doubled between 1974 and 1976—from about 12 percent to about 21 percent (103). By 1978, according to the Mexican Contraceptive Prevalence Survey, 35 percent of married women of reproductive age used modern family planning methods (36).

The major reason for the birthrate decline in Mexico was a drop in the fertility of married couples. A standardization study analyzed the 5.8-point drop in the crude birthrate between 1974 and 1978. If other components had not changed, declining marital fertility would have lowered the crude birthrate by 7 points. Growing proportions of women married and women of reproductive age would have increased the birthrate by 1.6 points (36).

Approximately half of the fertility decline is attributable to family planning methods provided through the national program, the other half to contraception from other sources—private family planning programs, private physicians, and commercial outlets. According to service statistics, by the late 1970s, the national family planning program supplied half of all contraceptives. This proportion may be even larger now in light of higher continuation rates among clients of the national program than among contraceptors supplied by the private sector (253). Estimates of births averted also suggest fairly equal contributions by public- and private-sector sources of family planning. According to one study, births averted by the national program amounted to about 42 percent of all births averted in 1978 (36). A prevalence model credits the national program with approximately 48 percent of the births averted; private-sector methods and services, with 52 percent (35).

A remaining challenge for the Mexican family planning program is to increase acceptance rates among certain socioeconomic groups. As in many other developing countries, both knowledge of and use of contraceptives are much more widespread in urban than in rural areas. According to a 1979 survey, 49 percent of urban couples were using contraception compared with 27 percent of rural couples. Further, urban couples were more likely than rural couples to use modern methods (128).

Tunisia

Tunisia has been a pioneer of family planning and population policy in Africa. In 1964 Tunisia became the first

In 1964 Tunisia became the first nation in Africa to start a family planning program. Between 1966 and 1981, contraceptive use grew from 3 percent of married women of reproductive age to 27 percent, and fertility fell by about one-quarter. The program now supplies three-quarters of all family planning users. (US AID)

The Matlab Family Planning Projects—Two Experimental Studies

Two quasi-experimental studies that were conducted in Matlab, a rural district in Bangladesh, suggest that a carefully designed and well-managed program of house-to-house contraceptive distribution can significantly affect fertility. The first study was designed to find out whether making pills and condoms readily available would by itself increase contraceptive use and decrease fertility. The second study was designed to find out whether education, follow-up care, and a more comprehensive program with a wider variety of methods would further increase contraceptive use and decrease fertility (126, 242, 299).

In many ways Matlab is typical of rural Bangladesh. The standard of living is low. Illiteracy is widespread. Political turmoil and famines have periodically raised mortality rates. In other ways, Matlab is unique because it has been the setting for a great deal of research. In the mid-1960s the Cholera Research Laboratory, now the International Center for Diarrheal Disease Research, Bangladesh (ICDDR,B), opened a field station to treat cholera and other acute diarrheal diseases and to conduct research. In the course of that research, ICDDR,B has collected remarkably complete and accurate vital events data. Matlab was chosen as the site for the contraceptive distribution studies to take advantage of the vital events record-keeping system (126, 242).

Contraceptive Distribution Project

The first study, the Contraceptive Distribution Project (CDP), ran for two years—from October 1975 to October 1977. The study divided 233 similar villages into a treatment group—150 villages where project field workers distributed contraceptives—and a control group—83 villages where the field workers did not distribute contraceptives (126, 299).

Oral contraceptives were the main method distributed and were most widely used. Field workers visited each household in the treatment villages and offered all married women of reproductive age a supply of oral contraceptives. If women did not accept the pills, they were offered condoms. Field workers made little effort to motivate women to use contraceptives and gave only brief instructions on how to use them. The initial contraceptive distribution lasted two months. Field workers made return visits to resupply acceptors and to recruit new users (126, 254, 255).

Contraceptive use rose sharply in the treatment villages but not in the control villages. In the treatment area contraceptive use among women of reproductive age rose from an initial level of one percent to nearly 18 percent after three months but then declined to 14 percent after one year and 12 percent after two years. In the control area contraceptive use increased very slightly over the course of the study, from an initial level of about 3 percent to about 4 percent after two years (254). Depending on assumptions about fertility differences between the treatment and control villages before the distribution project started, the program reduced fertility between 5 and 17 percent in the first year but produced little or no reduction in the second year despite the difference in contraceptive prevalence (299).

Family Planning-Health Services Project

In light of this limited impact, a second study, the Family Planning-Health Services Project (FPHSP), was launched in October 1977. Major changes were to train field workers much more rigorously, to provide a wider variety of family planning methods, to emphasize education and follow-up of acceptors, and to integrate family planning services with maternal and child health services. Field workers offered couples several methods of contraception—oral contraceptives, condoms, foaming tablets, and injections. Women were referred to clinics for services such as IUD insertion and sterilization. Each field worker visited each household in her village every two weeks. The purpose of the frequent visits was to follow-up acceptors and to recruit new users. The field workers handled simple contraceptive side effects and referred more serious cases to a physician. Field workers also provided other health services such as oral rehydration therapy for childhood diarrhea and tetanus vaccinations (18, 242).

Seventy villages comprised the treatment area for the second study, 39 from the former treatment area and 31 from the former control area. Seventy-nine villages served as the new control group, 54 from the former treatment area and 25 from the former control area (242).

In the new treatment villages, contraceptive use among married women of reproductive age rose steadily from a preprogram level of 7 percent to 33 percent by April 1979, six months after the program started. By 1984 contraceptive prevalence in the area was over 40 percent (240). Continuation rates were fairly high—74 percent in April 1979—partly because a majority of contraceptors were using long-acting injectables (18).

In contrast to the first project, the comprehensive distribution program seems to have produced a significant and sustained fertility decline. In 1977 the general fertility rate (GFR) was 9 percent lower in the treatment area than in the control area. One year later the difference had increased significantly: the GFR in the treatment area was 25 percent lower than in the control area. The difference remained at 25 percent in 1979. Depending on assumptions made, the program reduced fertility by 22 to 25 percent during the first two years (242).

Recently, ICDDR,B has been collaborating with the government family planning program in an attempt to duplicate the success of the Matlab program in other areas of Bangladesh. The government program has been constrained by a lack of trained personnel, transport, supplies, and facilities. ICDDR,B has been working with government program personnel to improve the functioning of the program (241, 285, 355).

African country and the first Arab country officially to endorse fertility reduction as a means of facilitating socioeconomic development (10). The decline in fertility in Tunisia between the 1960s and 1980s has been one of the largest in Africa. The crude birthrate dropped from about 45 in 1960 to about 34 in 1981 (130) (see Figure 7). The total fertility rate dropped from 7.1 in 1966 to 5.2 in 1981 (10). The decline took place during a period of social and economic development. Part of the fertility decline was due to the national family planning program. Through the program, contraceptive use increased and marital fertility decreased. Rising age at marriage and changes in the age structure of the population contributed importantly to the fertility decline between the mid-1960s and mid-1970s (4, 137).

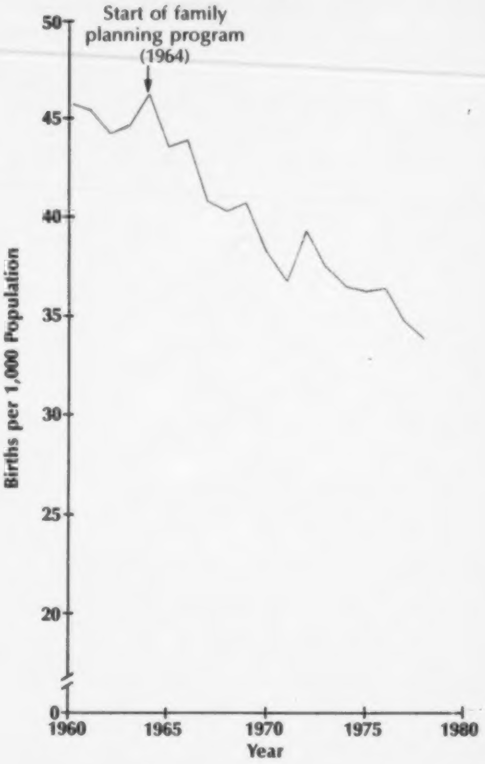
The national family planning program began in 1964 under the Ministry of Public Health and became an independent agency in 1973 under the direction of the newly created National Office of Family Planning and Population (ONPFP). The number of new clients grew from fewer than 1,500 in the first year of the program to an estimated 105,000 in 1982. Nearly 750 local and regional family planning centers had been established by 1981 (4, 10). On the Mauldin and Lapham program effort scale, the family planning program was rated moderate in 1982 (199).

The family planning program is part of a larger government effort to slow population growth. Other initiatives have included: (1) limiting family allowances to four children only in 1960; (2) raising the legal minimum age at marriage from 18 to 20 for men and from 15 to 17 for women in 1964, although by then few Tunisian women were marrying before age 17; and (3) legalizing abortion on request in 1973 (60, 137, 177). The Tunisian government hopes to achieve a crude birthrate of 20 and a total fertility rate of 2.3 by the year 2000 (4).

The government program is the primary source of family planning methods, supplying approximately three-quarters of users (10). Pharmacies and retail stores sell contraceptives such as oral contraceptives (OCs), condoms, and spermicidal creams and foams. Private physicians also offer family planning services. Use of modern family planning methods from all sources has grown steadily. In 1966, 3 percent of married women of reproductive age were practicing some form of family planning. Use grew to 6 percent by 1971, 13 percent by 1976, and 27 percent by 1980 (10, 319). Currently, the most widely used contraceptive is the IUD, followed by OCs. The number of female voluntary sterilizations has risen steadily, and about 9,500 were performed in 1982 (10, 222).

Women and children assemble in a village of Matlab, Bangladesh. Studies in Matlab show that a well-managed family planning program, offering a variety of contraceptive methods and follow-up care, can reduce fertility even in a poor area. (S. Huffman, JHU)

Figure 7. Trends in Crude Birthrate in Tunisia, 1960–1978



Source: Adjusted crude birthrates, based on vital statistics, from Jemai and Jemai (137)

The decline in the crude birthrate has been caused mainly by a rise in the average age at marriage and declining marital fertility. Two standardization studies have analyzed the 7.5-point drop in the crude birthrate between the mid-1960s and mid-1970s. In the absence of other changes, rising age at marriage would have decreased the birthrate 4 to 5 points. Declining marital fertility alone would have caused roughly a 3-point drop in the birthrate. Changing age structure produced two trends that offset one another. Women of reproductive age made up a larger proportion of the total Tunisian population. That change would have raised the birthrate 2 to 3 points. At the same time, the number of women between the ages of 25 and 39—a group with relatively high fertility—dropped from about 42 percent to about 34 percent of all reproductive-age women. That change by itself would have reduced the crude birthrate by about 2.5 points (4, 137).

Although specific results vary depending on the methodology used, Tunisian data show that the national family planning program has averted a substantial number of births. A prevalence model study estimated that the government program accounted for 78 percent of the births averted in 1979. Contraceptive methods and services obtained in the private sector accounted for 22 percent (135). Two studies calculated births averted by the government program in 1975. Estimates ranged from approximately 27,000 to 51,000 (4, 137).

The fertility decline in Tunisia was most pronounced during the early years of the national program. The crude birthrate declined slightly during the early 1960s, but the decline accelerated between 1964 and 1971. After 1971, the crude birthrate continued to decline, but more slowly (137) (see Figure 7). Although the fertility decline in Tunisia has been one of the largest in Africa, the fertility rate and the population growth rate remain moderately high, prompting some speculation that fertility has reached a plateau (10, 37).

The view among most Tunisians that a family should have at least four children may help to explain the relatively high fertility rates in Tunisia. The 1978 World Fertility Survey found that on average women preferred a family size of 4.2 children (318). According to a 1983 survey, 54 percent of respondents thought that four children were ideal, and an additional 10 percent thought that more than four children were ideal (10).

Another major problem in Tunisia is inadequate family planning services in rural areas. Two-thirds of all family planning acceptors live in urban areas, even though urban women represent only half of the female reproductive-age population (186). Surveys show that rural women are interested in using family planning, but many either do not know where to obtain family planning services or find it difficult to reach a supplier (186, 203).

Mauritius

Fertility declined sharply in the island of Mauritius from the 1950s to the early 1970s. After rising to over 40 per

Three Family Planning Programs with Little Impact

The family planning programs of Pakistan, Nepal, and Kenya are three programs that have had little, if any, impact on contraceptive prevalence and fertility. All three started in the mid-1960s and received substantial financial support over the past two decades. The Pakistan program, for example, received over $160 million between 1960 and 1976, about half of which came from international donor agencies (332). Yet, in all three countries, contraceptive use remains very slight—5 percent of married women of reproductive age in Pakistan in 1975, 7 percent in Kenya in 1977–78, and 7 percent in Nepal in 1981 (40, 149, 181). Fertility remains very high—in 1982 Pakistan had a CBR of 42 per 1,000, Nepal had a CBR of 43 per 1,000, and Kenya had a CBR of 55 per 1,000, the highest in the world (352).

These family planning programs have had little impact partly because they are not strong programs. All three programs are classified as weak by Lapham and Mauldin, both in 1972 and in 1982, although the Pakistan and Nepal programs improved slightly between the two periods. The programs are especially weak in providing services and in making family planning available and accessible. Policy elements of the programs (such as statements by political leaders) are stronger, however.

Various organizational problems have plagued these programs. In Pakistan, for example, poorly trained midwives, many of whom disapproved of family planning, were at first used to promote and provide contraception (266). Later, those selected to provide and promote family planning in rural areas were given little central support or were assigned to other activities with higher political priority. In Kenya family planning services were available mainly in clinics which, in rural areas, often were open only a few days a week and were several hours' travel from many villages (102, 206). In both Pakistan and Kenya officials tended to rely on internal reports of increasing numbers of program acceptors rather than carrying out independent surveys to see if use was really at the reported levels (102, 266).

At the same time, the socioeconomic setting in these three countries is not favorable to family planning. All three have predominantly rural populations, very low per capita income, and low literacy levels—all of which are strongly associated with large average family size. Also, all three are male-dominated societies where a woman's personal status and security depend greatly on her ability to produce male children (178, 206, 266, 317, 332). Pakistan is a Muslim society where women's activities are severely constrained by Islamic law and custom.

These socioeconomic conditions, plus adverse political, geographic, and/or climatic conditions, have made it difficult to run effective family planning programs. Storage, communication, and transportation systems are limited. There are few skilled health personnel, managers, communication experts, and other trained workers, especially in the rural areas (102, 178, 206, 235, 266, 332). This has been a particular problem in Nepal, where skilled personnel are few and 95 percent of the population live in rural areas. In addition, Nepal's mountainous terrain makes supplying contraceptives extremely difficult (178, 235). In Pakistan political upheavals have impeded the work of the family planning program (266).

Thus weak program efforts under unfavorable socioeconomic, political, and geographic conditions have produced no significant fertility change in these countries. Their experience confirms that even more effort is needed to reduce fertility in such a setting than in countries with a more favorable socioeconomic setting. In other words, as an overview of family planning effectiveness by Steven W. Sinding pointed out, where the socioeconomic setting is favorable to smaller families, simply providing family planning services can make a difference to fertility (286). Where the setting is less favorable, programs need to be much more vigorous in providing information, outreach services, and follow-up if they are to achieve measurable fertility declines (286).

1,000 in the early 1950s, the crude birthrate dropped to 22.7 per 1,000 in 1973. It then rose slightly, fluctuating between 25 and 27 per 1,000 in the middle and late 1970s. In 1982 it was estimated at about 26 (see Figure 8). The total fertility rate dropped from about 6 in the 1950s to 3.5 in 1971 (258). In 1982, it was estimated at 2.9 (352). Most studies suggest that between 50 and 60 percent of this fertility decline was due to use of contraceptives, mostly supplied by the family planning program. The other 40 to 50 percent was mostly due to an increase in age at marriage since the 1950s. Between 1962 and 1972 the percentage of women age 15 to 19 who were married dropped from 28 to 12; the percentage of women age 20 to 24 who were married dropped from 68 to 50 (108, 256).

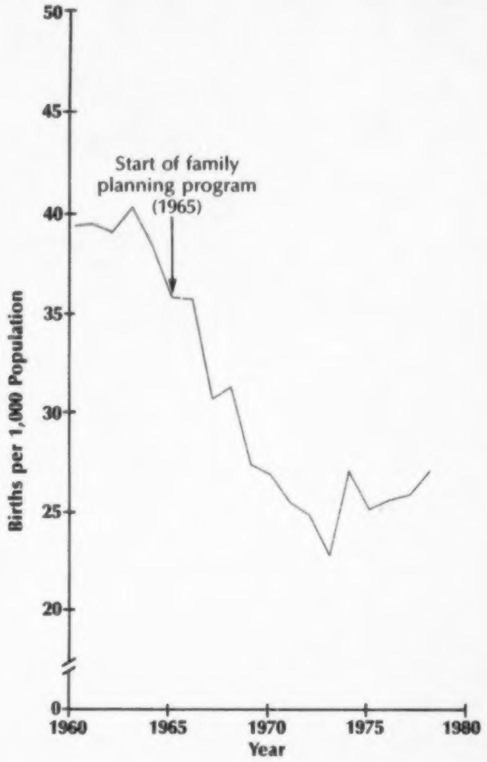
The Mauritius family planning program is widely regarded as one of the most successful in the world. In both 1972 and 1982 Mauritius was the only African nation with a program rated "strong" on the Mauldin and Lapham family planning program effort scale (199). As an island in the Indian Ocean with a large Indian population and a per capita annual income over $1,000 (US), Mauritius is distinct from both Asia and Africa. The program began in the late 1950s with a voluntary organization, the Mauritius Family Planning Association. In 1963 a Roman Catholic organization, Action Familiale, was established, mainly to promote periodic abstinence, or Natural Family Planning methods. In 1964 the government began providing financial assistance to both organizations. In 1972, the government maternal and child health division took over most family planning activities, providing services through 85 clinics, 41 supply centers, and a mobile unit (16, 108). By this time about 50 percent of ever-married women had received supplies and services through the program, and about one-fifth of women of reproductive age were current clients (16, 258). By 1975 about one-third were current users of contraception. Oral contraceptives were the most commonly used method, followed by periodic abstinence (16).

A standardization analysis of the 12-point decline in the CBR between 1962 and 1972 found that lower marital fertility—presumably due to contraception—was the major cause. Lower marital fertility alone would have caused a 10-point decline in CBR, while an increase in the age at marriage would have caused an additional 6.5 point decline. Together, these factors outweighed the 4-point increase in CBR that would have been caused by the increased proportion of women of reproductive age (108).

A trend analysis suggests that the program contributed to the fertility decline in Mauritius. The CBR dropped 0.62 points per year between 1952 and 1964, before the program started, compared with 0.86 points per year between 1965 and 1977—a 30 percent change. The analysis may underestimate the program effect, however, for two reasons. First, family planning activities carried out by private voluntary agencies began well before 1964. Second, trend analysis does not account for the increased proportion of women of reproductive age after 1964—a change that would tend to increase the CBR (108).

Analyses of program statistics strongly suggest that the program has been a major reason for the fertility decline. According to a component projection analysis, use of program methods was responsible for about 70 percent of all births averted in 1972 (108). An analysis using the new prevalence method, but estimating contraceptive prevalence from acceptor data, found that the program accounted for about 90 percent of all births averted in 1972 (109).

Figure 8. Trends in Crude Birthrate in Mauritius, 1960–1978



Source: Adjusted crude birthrates, based on vital statistics, from Hanoomanjee (108)

Improved socioeconomic conditions in Mauritius have contributed to the increased use of contraception and the rising age at marriage. In contrast to most other African nations, in Mauritius education is readily available, literacy is widespread, the infant mortality rate is low, and most people live in urban areas (290). Together this favorable setting and the strong family planning program have resulted in the fertility decline observed in the 1960s and early 1970s.

CROSS-NATIONAL STUDIES

In addition to analysis of fertility change within countries, a way to assess the effects of family planning programs is by cross-national comparisons. These generally measure both the strength of different family planning programs and the levels of selected socioeconomic indicators in a number of countries to identify the relative impact of these different factors.

Like national studies, cross-national studies generally show that family planning programs contribute to lowering fertility. These studies encounter particular problems, however. It is difficult to obtain from various countries data that adequately represent socioeconomic status and

One of the socioeconomic indicators most closely related to declining fertility is increases in literacy among women. Here, women in Bangladesh learn to read. (Chernush/World Bank)

program strength. When data are obtained, it is difficult to ensure that they are comparable and suited to the multivariate analytical techniques generally used (see box, p. J-755). In addition, using countries as the unit of analysis ignores differences in program strength and socioeconomic status within each country (115, 122, 199, 272). Despite these problems, cross-national studies provide useful information about the impact of family planning programs that cannot be obtained by looking only at a single area.

To date, about a dozen cross-national studies have tried to quantify the impact of family planning programs on fertility or on the use of contraception. These studies, using data from the late 1960s to the early 1980s, have covered as few as 10 and as many as 94 countries. They have applied such techniques of analysis as correlation, multiple regression, exploratory data analysis, and path analysis at different levels of complexity. Three general conclusions can be drawn from the studies:

1. Family planning programs have a significant independent effect on contraceptive use, fertility, and fertility change beyond that attributed to socioeconomic factors.
2. Socioeconomic factors also have a significant independent effect on contraceptive use, fertility, and fertility change.
3. The combined effect on fertility of both the socioeconomic setting and the family planning program is greater than the sum of these independent effects because of interaction between the two. In practice, this interaction generally means that a favorable social setting strengthens and facilitates the operation of a family planning program.

The earliest major study, part of a World Bank report compiled by Timothy King, used 1970–73 data from 19 developing countries. The program indicators considered were numbers of service facilities, personnel, and physicians, and also expenditures per 1,000 married women of reproductive age. The socioeconomic indicators were per capita gross national product (GNP), female school enrollment, death rate, urbanization, newspaper circulation, and population density (155).

In this study, family planning program indicators had a significant independent effect on both use of program-supplied methods and on use of all contraceptives, regardless of source. The independent effect of the program accounted for 39 percent of the variance in use of program-supplied methods and 22 percent of the variance in the use of all contraceptives. The combined effects of program and socioeconomic factors were 93 percent for program use, 85 percent for all use. Interaction accounted for about a third of the combined effect. These results are summarized below:

	Use of Program Contraceptives	Use of All Contraceptives
Overall socioeconomic effect	54%	63%
Independent effect	19%	31%
Interaction effect	35%	32%
Independent program effect	39%	22%
Combined effect	93%	85%

A study by Ronald Freedman of the University of Michigan and Bernard Berelson of the Population Council, using data from 46 developing countries, reached similar conclusions. Freedman and Berelson consolidated program data into a family planning program effort index, developed earlier by Robert J. Lapham and W. Parker Mauldin (175) (see box, p. J-756). Similarly, they consolidated socioeconomic data into a social setting index. Regression analyses using the social setting and program effort indices found that the combined effect of social setting plus program effort was associated with about 70 to 80 percent of the variance in 1972 birthrates, 1960–73 birthrate declines, 1973 use rates, and 1973 acceptor rates. The effect of program effort independent of social setting was 15 percent for birthrates, 17 percent for birthrate declines, 18 percent for use rates, and 19 percent for acceptance rates. The interaction effects between social setting and program effort were large in all analyses, ranging from 42 to 50 percent (96).

In two separate cross-national studies, K.S. Srikantan of the Population Council analyzed the impact on fertility of two family planning program inputs (expenditures per acceptor and personnel per 10,000 population) and five outputs (various measures of acceptance and use). At the same time, he examined the direct effect of numerous socioeconomic factors on fertility and the indirect effect of socioeconomic factors through program operations. He also looked for groups of measures that seemed to be linked to "spillover effects"—when program activities increased use of contraceptives from the private sector—or "substitution effects"—when program services were used by people who had previously used contraception supplied by the private sector (295).

In the first study Srikantan analyzed 1970 data from 20 developing countries with large family planning programs. Some 400 path analyses and 400 multiple regression analyses were conducted for all possible combinations of program inputs, program outputs, and socioeconomic indicators. The average amounts of variance in CBR accounted for by the socioeconomic and family planning effects (expressed as a percentage of their combined effect) for the 400 path analyses are listed below:

Total socioeconomic effect	52%	
Direct socioeconomic effect		35%
Indirect socioeconomic effect through program operation		17%
Total family planning program effect	48%	
Effect of input measures (funds and personnel)		9%
Effect of output measures (acceptance and use)		39%

Srikantan speculated that the program input effect represents an indirect, spillover effect of the program and that the program output effect represents the direct effect of the program on fertility. Srikantan performed various analyses on the 20-country data to determine which socioeconomic indicators, if their levels were high, would suggest relatively efficient implementation of a family planning program and large spillover effects. He concluded that female literacy and employment, the ratio of radios to population, and the availability of physicians were especially important (295).

Srikantan also speculated that a negative effect of program inputs on fertility might represent a substitution effect. The socioeconomic indicators most closely linked to this negative effect were life expectancy, percentage of women of reproductive age who were married, school enrollment rate, and infant mortality rate (295).

Srikantan's second study, of 10 Asian programs (Indonesia, Cambodia, Burma, the Philippines, Thailand, Malaysia, South Korea, Singapore, Taiwan, and Hong Kong) involved similar methods. As in the 20-country analysis,

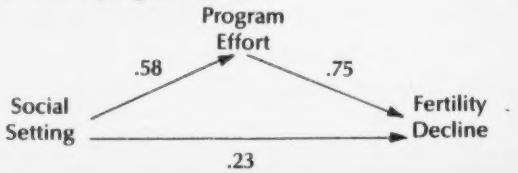
Understanding Results of Multiple Regression Analyses

Many cross-national studies use stepwise multiple regression analyses to assess the impact of socioeconomic and program indicators on fertility. The indicators used to suggest socioeconomic setting usually are available quantitative measures, such as literacy level, annual per capita income, and life expectancy. The measures used to suggest program strength may be quantitative, such as clinics per 1,000 married women of reproductive age and expenditures for IEC activities. In many cases, however, the strength of various program elements is estimated by experts (see box, p. J-756). The experts assess such aspects of a program as adequacy of supervision and the ranking of top family planning officials within the government. How fully the indicators and measures chosen reflect actual socioeconomic conditions and program effort is crucial to the results of an analysis, yet very difficult to judge. The fertility variables chosen—CBR, TFR, or change in CBR or TFR—also affect results. CBR values are most often used because they are most readily available. TFR values, however, unlike CBRs, are not affected by differences or changes in age structure or average age at marriage (115, 122, 272).

One of the most often cited statistics produced by a regression analysis is R^2. The R^2 value indicates how much of the difference, or variance, in fertility among different countries is associated with the difference in a variable or a group of variables. In stepwise regression, independent variables are entered into the analysis one at a time. Since variables representing socioeconomic development and program effort usually are related, the variables that are entered into the analysis first often capture part of the variance that could have been attributed to the remaining variables. As a result, adding the remaining variables may then increase the R^2 value only slightly. Thus the R^2 or the change in R^2 associated with a specific variable is different depending on when it is entered into the analysis.

For cross-national studies, the most realistic approach is to enter social setting indicators into an analysis first, then see how much additional variance is accounted for by family planning program elements. This corresponds to the fact that a family planning program is started and operates within a given set of socioeconomic characteristics. These characteristics influence individual preferences about fertility as well as the availability of contraception. For example, in the 1978 cross-national analysis performed by Mauldin and Berelson (200), the R^2 for social setting alone was .66. That is, 66 percent of the variance in fertility change among the 94 countries studied was associated with social setting. The R^2 for the additional independent effect of family planning program effort was .17. That is, 17 percent of the variance in fertility decline was associated with differences in program effort. The combined effect, then, of social setting plus program effect was .83 (.66 + .17). In another step of the analysis, it was determined that the social setting effect consisted of two components, a small independent effect ($R^2 = .05$) and a large effect that represents the interaction between program effect and socioeconomic setting ($R^2 = .61$). The large interaction effect seen in this and other studies suggests that social setting affects fertility partly by making individuals more receptive to family planning programs and partly by making programs function more efficiently.

Another type of regression analysis frequently used with cross-national data is path analysis. Path analyses gauge the direct effects of program effort and socioeconomic factors and the indirect impact of socioeconomic factors through their influence on the efficiency of the program. The diagram below illustrates the direct and indirect effects of social setting in the Mauldin and Berelson study (200). The values next to each arrow are the path coefficients for each effect. The larger the path coefficient, the stronger the association. Thus the path coefficient of the direct effect of program effort on fertility decline, .75, indicates that this effect is about three times as strong as the direct effect of social setting on fertility, which had a path coefficient of .23. The coefficient for the indirect effect of social setting on fertility decline is .44. This is calculated by multiplying the social setting–program effort coefficient (.58) by the program effort–fertility decline coefficient (.75). Thus the total effect of social setting on fertility decline is the direct effect (.23) plus the indirect effect (.44), or .67. Basically, these values support the conclusion of Mauldin and Berelson's other analyses: program effort had a greater direct effect on fertility than social setting, whereas social setting had a direct effect plus a substantial indirect effect through its effect on program effort.



the contributions of socioeconomic and program factors in explaining the variation in fertility rates were about equal. Almost three-fifths of the socioeconomic effect was direct. The remaining two-fifths reflected the influence of socioeconomic factors on program functioning.

In contrast to the results of the 20-country study, however, in the Asian study Srikantan identified two-thirds of the program effect as an indirect, spillover effect—increases in use of contraception from private sources but due to program activities. Seven socioeconomic variables were closely associated with spillover effects. Six of these reflected the role and status of women—for instance, percentage of women married, percentage of women employed in white-collar jobs, and percentage of females in school (295). Thus programs operating in Asian countries where many women are educated and employed may affect fertility both by supplying contraception and by stimulating use of contraception from the private sector. This may be especially likely when programs include an effective education and communication component (295).

A study by Rashid Faruqee of the World Bank, using data from 51 developing countries, also found that family planning factors had a signficant independent effect on fertility and on fertility declines (87). Some 15 indicators were grouped into four categories, or factors: development (including indicators related to urbanization, GNP, and health status), family planning (years of program operation, number of personnel, and number of clinics), government expenditures (overall expenditures and expenditures on health and education), and economics (investment and economic growth measures). According to multiple regression analyses, the development factor was associated with 42 percent of the variance in 1975 birthrates. The family planning factor was associated with an additional 28 percent of the variance in 1975 birthrates. In an analysis of 1970–75 birthrate declines, the development factor was associated with 14 percent of the variance, and the family planning factor, with an additional 7 percent. The contributions of the other two factors were not statistically significant in either analysis. Faruqee concluded from these analyses that the standard of living—as reflected in such indicators as urbanization, personal income, and health status—was the most important determinant of fertility but that family planning programs also had a significant effect (87).

1982 Program Effort Scale Used by Mauldin and Lapham

POLICY AND STAGE-SETTING ACTIVITIES

*1. Official government policy on fertility/family planning and population growth
*2. Favorable statements by government leaders
3. Level of family planning program leadership within government
4. Minimum legal age at marriage at least 18 for females; extent of enforcement
*5. Laws permitting contraceptive imports; in-country manufacture
6. Legalization of mass-media advertising of contraceptives
7. Involvement of numerous ministries and government agencies
*8. Percentage of total program budget from in-country sources

SERVICE AND SERVICE-RELATED ACTIVITIES

9. Involvement of private-sector agencies
10. Use of government personnel to carry out program; accountability at all levels
11. Community-based distribution (CBD)
12. Social marketing programs
*13. Postpartum family planning programs
*14. Home visiting by family planning workers
15. Adequate administrative structure and staff
*16. Adequate training programs
17. Extent that staff carry out assigned tasks
*18. Adequate logistics and transport
19. Adequate supervision
*20. Use of mass-media
21. Incentives and/or disincentives

RECORD-KEEPING AND EVALUATION

*22. Collection, reporting, and feedback on clinic records
*23. Evaluation
24. Management use of evaluation findings to improve program

AVAILABILITY AND ACCESSIBILITY OF FERTILITY CONTROL METHODS

**25. Male sterilization
**26. Female sterilization
***27. Oral contraceptives (or injectables, if more popular)
***28. Condoms (or other barrier method, if more popular)
***29. IUDs
*30. Safe induced abortion

*Included in 1972 program effort scale
**Items 25 and 26 included as one item in 1972 program effort scale
***Included as two items in 1972 program effort scale
Source: adapted from Mauldin and Lapham (199)

A detailed version of this scale was sent to family planning experts in each country—program administrators, donor agency representatives, and independent observers (176). These experts rated each item from zero to four points. Their total scores were averaged to obtain the final score for each country.

Comparison of 94 Countries

One of the most comprehensive studies of fertility decline in developing countries, prepared by W. Parker Mauldin of the Rockefeller Foundation and Bernard Berelson, used various analytical techniques to study the effects of social setting and family planning program effort on fertility declines between 1965 and 1975. The 94 developing countries covered included all with more than one million population plus Barbados, Fiji, and Mauritius. A social setting index was made up of seven socioeconomic measures that were most readily available and most closely associated with fertility decline. They were measures of

Women and children gather to hear a radio broadcast with a family planning theme. A study of family planning programs in 93 developing countries found that use of the mass media is among the most important elements in programs. (Chernush/World Bank)

adult literacy, school enrollment, life expectancy, infant mortality, per capita GNP, nonagricultural labor force, and percentage of the population living in cities of over 100,000. Countries were rated as high, upper-middle, lower-middle, or low on a social setting index. Family planning effort was classified according to average ratings on the 1972 Lapham-Mauldin scale. The scale was sent to various family planning experts around the world, who rated 15 components of programs (175) (see box, p. J-756). As of 1972, 11 of the countries had strong programs; 15, moderate programs; 30, weak programs; and 38, no programs at all (200).

All analyses from this study confirmed that program effort was significantly associated with fertility declines independently of the effect of social setting. Regression analyses found that overall social setting was associated with 66 percent of the variance in fertility declines. Program effort independently was associated with an additional 17 percent. Thus the combined effect was 83 percent. About three-fourths of the combined effect was due to interaction between social setting and program effort. Another analysis, which used data on changes in socioeconomic conditions from 35 of the countries, also found that program factors had a significant, independent effect on fertility change.

Using a path analysis technique, Mauldin and Berelson confirmed the impact of family planning effort on fertility as well as the importance of the indirect effect of social setting through program effort. The direct effect of program effort was large, as indicated by a path coefficient of .75. The direct effect of social setting was relatively slight, as indicated by a path coefficient of .23. The indirect social setting effect (through effects on family planning effort) was greater, as indicated by a path coefficient of .44 (see box, p. J-755).

Two authors have reanalyzed Mauldin and Berelson's data and produced somewhat different results. Donald Hernandez of the Social Science Research Council used Mauldin and Berelson's data plus three other sociodemographic indicators—island status, "pace of social change," and 1970 population density—to analyze change in CBR and change in TFR. Using various combinations of indicators and five different statistical models, he calculated that program effort had an independent effect of from 3 to 35 percent on change in CBR and from 2 to 13 percent on change in TFR. He concluded that the best estimate of independent program effort was 10 percent, compared with Mauldin and Berelson's 17 percent. Hernandez argues that using more indicators of socioeconomic setting would reduce the independent impact of family planning programs even further (122).

Bryan Boulier, in a study for the World Bank, reached a different conclusion, suggesting a stronger impact of family planning programs. He also reanalyzed the data, supplementing the social setting index with three other indicators—island status, per capita income, and prior fertility trends. He also used different data on life expectancy and analyzed changes in TFR as well as changes in CBR. In various analyses, Boulier concluded that program effort had a significant independent effect on fertility declines. Although he noted that it is "extremely difficult to separate the influences of program effort from the effects of demographic and socioeconomic change," he concluded:

> For a hypothetical country experiencing the average increases in literacy, urbanization, life expectancy, and income per capita over the decade (1965–1975) and attaining . . . the average level of effort [score] in 1972, 33 percent of the fertility decline is attributable to fertility reduction prior to 1965, only 27 percent to the direct effects of socioeconomic change, and fully 40 percent to family planning effort. (29)

The Mauldin-Berelson study recently has been expanded by Mauldin and Robert J. Lapham of the National Academy of Sciences and has been updated to include data through 1982. Overall results of this study of 1965–80 fertility declines are almost identical to those of the earlier study of 1965–75 fertility declines, but the study is more detailed and comprehensive. Program effort in 1982 was scored on an expanded, 30-item scale by experts on each program (see box, p. J-756). Using data from 93 countries, a preliminary version found that, considered alone, program effort was associated with an additional 16 percent of the variance in fertility declines beyond the effect of social setting (compared with 17 percent in the previous analysis). Social setting was associated with 67 percent of the variance (compared with 66 percent). Thus the combined effect was associated with 83 percent of the variance (the same as in the previous analysis). Again, about three-fourths of the combined effect was due to interaction between social setting and program effect. Path analyses also obtained results very similar to those of the earlier study (174, 199). When Lapham and Mauldin repeated the regression analysis using change in TFR instead of change in CBR, the combined effect was about the same—82 percent. The effect of independent program effort was less—8 percent (199). The final version of the analysis, to be published in 1985 and covering 100 countries, confirms the preliminary results (171).

In the Mauldin and Lapham study, all analyses confirmed the interaction between family planning program effort and social setting indicators. A cross-tabulation illustrates this point (see Table 12). Programs in countries with high social setting ratings were more successful than comparable programs in countries with lower social setting ratings (174, 199).

Two recent studies using data from the Mauldin and Berelson study (200) plus additional socioeconomic data also have found that program effort is significantly related to fertility declines. The first, by Phillips Cutright of Indiana University and William Kelly of the University of Texas, used data from 81 countries to evaluate the effects on fertility of five factors—the rate of legal abortions,

Table 12. 1965–1980 Crude Birthrate Declines (in Percents) in 87 Developing Countries by 1970 Social Setting and 1972–1982 Family Planning Program Effort, as Assessed by Mauldin and Lapham, 1984

	1972–1982 Program Effort								
1970 Social Setting	**Strong**		**Moderate**		**Weak**		**Very Weak or None**		**Mean for Each Social Setting**
High	Singapore	43	Cuba	59	Brazil	27	Lebanon	27	
	Hong Kong	40	Colombia	35	Mexico	22	Paraguay	14	
	Korea, South	30	Chile	32	Venezuela	14	Peru	11	
	Taiwan	30	Jamaica	30			Kuwait	8	
	Mauritius	28	Panama	28			Jordan	4	
			Costa Rica	24			Libya	0	
			Trinidad & Tobago	23					
			Fiji	18					
	Mean	34	*Mean*	31	*Mean*	21	*Mean*	11	25
Upper Middle	China	43	Thailand	37	Turkey	34	Mongolia	9	
			Malaysia	30	Egypt	12	Nicaragua	7	
			Philippines	23	Guatemala	7	Algeria	5	
			Dominican Republic	21	Ecuador	7	Syria	3	
					Morocco	6	Congo	0	
			Tunisia	19	Honduras	6	Ghana	0	
			Sri Lanka	18			Zaire	0	
			El Salvador	11			Zambia	0	
							Iraq	0	
	Mean	43	*Mean*	23	*Mean*	12	*Mean*	3	13
Lower Middle			Indonesia	28	Haiti	11	Kampuchea	14	
			India	17	Pakistan	9	Burma	6	
			Viet Nam*	10	Kenya	0	Papua New Guinea	5	
							Yemen, South	3	
							Bolivia	2	
							Ivory Coast	1	
							Nigeria	1	
							Senegal	0	
							Liberia	0	
							Madagascar	0	
							Mozambique	0	
							Uganda	0	
							Cameroon	0	
							Zimbabwe	−1	
							Lesotho	−4	
			Mean	19	*Mean*	7	*Mean*	2	5
Low					Bangladesh	0	Mauritania	6	
					Nepal	−1	Laos	5	
							Burundi	4	
							Afghanistan	3	
							Guinea	2	
							Togo	2	
							Niger	1	
							Central African Rep.	0	
							Chad	0	
							Ethiopia	0	
							Malawi	0	
							Rwanda	0	
							Sierra Leone	0	
							Sudan	0	
							Tanzania	0	
							Burkina Faso	0	
							Yemen, North	0	
							Somalia	0	
							Mali	−1	
					Mean	0	*Mean*	3	1
Mean for Each Program Effort Level		36		26		11		3	11

*1972 program effort score is for North Viet Nam only.

Source: Mauldin and Lapham (199)

presence of Islamic culture, low literacy rate in certain Latin American countries, family planning effort, and socioeconomic development (the last an index based on five indicators). A multiple regression analysis found that, excluding family planning effort, the other four variables accounted for 79 percent of the variance in fertility change between 1958 and 1977 but that family planning effort accounted for an additional 11 percent of the variance. This additional impact was important in light of the variety of socioeconomic, demographic, and cultural indicators used in the analysis (71).

A second analysis by Cutright, using data from 83 countries, evaluated the effect on fertility of family planning effort and five separate socioeconomic variables. Family planning effort and measures of adult literacy and life expectancy proved to be the most important. All three measures were strongly related to the change in CBR between 1960 and 1980. Cutright concluded from these results that improvements in family planning programs, education, and health care are the most important means to reduce birthrates (69).

A recent analysis of 24 Asian countries (excluding China) by Gayl Ness and colleagues at the University of Michigan confirmed the impact of program effort and socioeconomic conditions on family planning acceptance and use. The authors concluded from their analysis that program effort can have the greater direct impact, however (215) (see p. J-760). Data from two or more decades of experience in each program were gathered. More than 30 socioeconomic indicators were used. The expected relationships between socioeconomic development and strength of family planning programs, on one hand, and contraceptive use, on the other, were confirmed. The links between socioeconomic status, program strength, and government policy, on one hand, and fertility, on the other, were confirmed by path analyses (215).

KEY PROGRAM ELEMENTS

Family planning programs that are successful in reducing fertility usually do a number of things well. First and foremost, they effectively deliver information, services, and supplies to the people who need them. Programs that do so tend to have strong government policy and financial support; to operate under carefully developed management strategies at all levels; to promote a variety of delivery systems, such as free-standing clinics, community-based distribution, mobile services, and hospital-based services; to provide a number of different contraceptive methods; and to publicize and promote the use of family planning through mass media and community organizations (61, 84, 173, 352).

Family planning programs have been evaluated ever since the first programs started, but until recently much less attention has been given to evaluating each element within a program to measure which are most important. Also, while operations research has focused on service delivery and tested specific approaches, most research has not compared the different elements of programs on a cross-national basis. Such comparisons are not easy. First, programs vary so much from country to country that it is difficult to compare separate components in a systematic and consistent way. Second, studies that have addressed the relative importance of program elements have used various measures of program success, such as fertility change, contraceptive prevalence, and program efficiency (new clients or users per staff). Thus it is difficult to compare their results. Third, where specific elements have been examined, they often are closely interrelated. For instance, some studies have concluded that accessibility and availability of contraceptives, decentralization of administration, and effective management are essential to program success. Yet decentralization of administration probably contributes to effective management. And effective management undoubtedly contributes to making contraceptives more available. In fact, it is difficult to separate the effects of any program component from the quality of management.

Appropriate supervision of family planning workers is a key element in program success. Here, volunteer outreach workers in Honduras receive instructions from their supervisor. (US AID)

New Cross-National Data

Two recent cross-national studies have provided useful new information on important program elements (199, 216). They support the consensus that an effective family planning program has appropriate management and decentralized administration and makes contraceptives widely available. They also provide new information about the role of information, education, and communication (IEC), integration of family planning services with maternal and child health and other services, and postpartum education and service delivery efforts.

The largest study, by W. Parker Mauldin and Robert J. Lapham, analyzes the factors associated with the fertility declines in 93 developing countries between 1965 and 1980 (see p. J-757). One issue examined in this study was: which items in the program effort scale are most closely linked to the decline in crude birthrate between 1965 and 1980? Using program effort data from a 1972 analysis (175) as well as 1982 data based on the new 30-item index (see box, p. J-756), Mauldin and Lapham found that the most important program factors were:

- the adequacy of supervision at all levels of a program,
- the extent to which family planning staff carry out assigned tasks,
- the availability and accessibility of services and supplies to current and potential users,
- the extent of postpartum programs,
- the extent that mass media are used for IEC,
- the extent to which program managers use evaluation results to improve the program.

When analyzed by multiple regression techniques without taking into account the effect of social setting, these six items accounted for 80 percent of the variance in 1965–80 declines in the crude birthrates—about the same as accounted for by the full program effort scale. Three of the items—supervision, personnel carrying out assigned tasks, and availability and accessibility—were particularly important (199).

The second study, by Gayl Ness and colleagues at the University of Michigan, used 1960–80 data from 24 Asian countries (216). Two regression analyses suggest that different factors contribute to the efficiency of new and mature programs. These analyses compared the effects of socioeconomic, government, and program indices on two program efficiency measures—acceptors per staff and users per staff. The researchers concluded that acceptors per staff is a good measure of efficiency in a new program since the number of acceptors per staff is usually high when a program begins, then gradually decreases. Users per staff might be a good measure of efficiency in a more mature program since it measures continuing family planning practice.

The regression analyses produced the following results:

Index	Relationship with Acceptors per Staff	Relationship with Users per Staff
Socioeconomic setting	Significant	Significant
Government:		
Central political strength	Significant	Not significant
Local participation	Significant	Significant
Program:		
Program duration	Significant (negative relationship)	Not significant
Integration with MCH services	Not significant	Significant
Proportion UNFPA, US AID funds	Significant	Significant

The researchers interpret these results as follows: In the early stages of a program, a strong central government and local participation in political and administrative activities (presumably including family planning activities) are important. In the later stages of a program, local participation becomes increasingly important as more varied service strategies, many involving local participation, usually are developed. Also, in the later stages of a program, integration of family planning with MCH services may help establish a continuing relationship with users. In the early stages of recruiting new acceptors, however, the additional complexities of integration probably will not help. The relationship between US AID and UNFPA funds and program efficiency suggests that support from these agencies may help programs to improve staff efficiency. As the researchers point out, however, this relationship may reflect the fact that in Asia US AID and UNFPA generally provide assistance to programs in countries where there is already substantial political support for family planning (216). China, where the government provides strong support for family planning, has received little outside assistance, however. It was not included in this analysis.

Another finding by Ness and colleagues points to the importance of a balanced program. Surprisingly—and somewhat in contrast to the Mauldin and Lapham findings—a correlation analysis found that the more a program spent on IEC activities, the lower its efficiency. This relationship was especially marked when IEC expenditures were above 30 percent of total program expenditures. This result suggests that money for IEC is not spent efficiently unless contraceptive supplies are made widely available and good management strategies are followed to meet the demand for family planning services and supplies. In other words, IEC activities, while important, cannot substitute for other necessary elements of a program, such as immediate availability of supplies and services.

The results of the Ness study are interesting but must be viewed cautiously for two reasons. First, acceptors per staff and users per staff are only measures of program efficiency. They are not always closely correlated with contraceptive prevalence or fertility declines. Second, the relationships discussed above are not particularly strong. For instance, the total variance explained by the two regression analyses was only 30 percent for the analysis of acceptors per staff and only 57 percent for the analysis of users per staff (216). Finally, the study may have limited applicability to other areas where central government leadership is not as strong.

Cost-Effectiveness of Various Delivery Systems

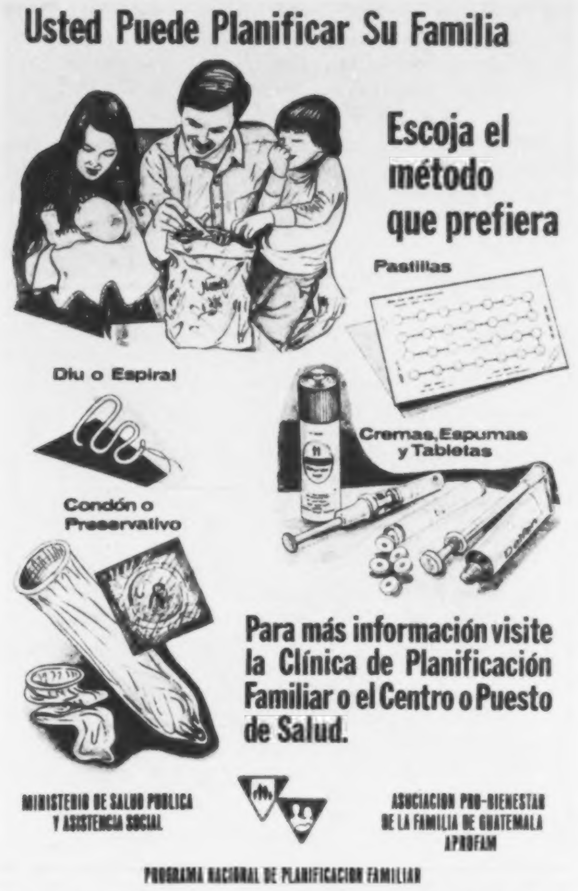
While it is not possible to evaluate the cost-effectiveness of all program elements, a few studies have investigated the cost-effectiveness of different contraceptive delivery systems. Results of these studies suggest that social marketing, local distribution depots, postpartum projects, and some voluntary sterilization services are generally more cost-effective than clinic-based programs or house-to-house distribution programs. In general, costs range from an actual profit of about $1.00 (US) per couple-year of protection (CYP) for a social marketing program in Colombia to a cost of about $90 for some clinic-based programs (5, 105, 170, 231, 289, 354).

It often is difficult to compare results, however, since cost-effectiveness depends on many factors, including how effectively an individual project is managed, what is included in project costs, whether workers are paid or volunteer, whether a program operates in urban or rural areas, and the age of a project. Another problem in comparing studies is that they use different measures of cost-effectiveness, most commonly cost per acceptor, cost per user, cost per CYP, or cost per birth averted. Furthermore, even though costs generally are calculated in US dollars, it is difficult to compare values from different years due to the rapid changes in exchange rates and inflation that occur in many countries (105, 354).

One of the few studies that compared the costs of various delivery systems within a single country investigated the five components of Colombia's PROFAMILIA program (see p. J-748). Costs per CYP for each delivery system were as follows:

Delivery System	Cost (in $US) per CYP, 1980
Clinic	$15.27
Sterilization	$ 2.18
Urban CBD	$ 3.42
Rural CBD	$18.70
Social Marketing	($ 1.03)–income

In this study the social marketing program was the most cost-effective. Unlike all other social marketing programs, it actually produced income for PROFAMILIA, mainly because it sells contraceptives at relatively high prices to mostly urban, middle-income couples. Also relatively cost-effective was the voluntary sterilization program,


Usted Puede Planificar Su Familia
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Diu o Espiral
Cremas, Espumas y Tabletas
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PROGRAMA NACIONAL DE PLANIFICACION FAMILIAR

By offering a number of different contraceptive methods, family planning programs can appeal to more potential users. This poster from Guatemala urges, "Choose the method you like" and shows pictures of the pill, the IUD, vaginal spermicides, and condoms.

which currently performs mostly female sterilizations. Most clients pay a fee for sterilization services. The urban CBD program, which sells contraceptives through local depots in densely populated urban areas, also was relatively efficient. The clinical program, on the other hand, was expensive, mainly because the cost of personnel needed to provide services was constant regardless of the number of users. The rural CBD program was the most expensive because it operated in sparsely populated areas (231).

The results of the PROFAMILIA study generally agree with what other studies have found, although all the cost figures in Colombia are low compared with those of most other programs. Costs of social marketing programs have ranged from providing a surplus, as in Colombia, to costing about $24 per CYP, as in the first year of the Jamaican program, 1976 (5). The costs of CBD programs vary even more—from about $3 to as much as $70 per new user in 1982, depending on whether the program uses depots or house-to-house distribution and whether it operates in rural or urban areas. Costs of clinical programs generally are the highest, ranging from about $13 to $80 per user in 1982 (170).

Programs can be relatively cost-effective when, like the Colombian social marketing program, they are designed to reach a special group that is easily accessible or able to pay for services. Postpartum programs, for example, have been highly cost-effective, averaging about $3 per acceptor in 1972 (44). Postpartum programs reach primarily women who deliver in hospitals, where a variety of services are readily available. Yet in many developing countries these are only a small proportion of all women.

Integrated programs may be highly cost-effective, depending on how costs are allocated among services and whether the combination of services attracts new acceptors or discourages them. In the Danfa project in Ghana costs per new client in an area offering only family planning services were $90 per acceptor compared with $49 in an area offering other services as well (21).

A quasi-experimental study involving rural areas of Cheju province, South Korea, between 1976 and 1979 evaluated the effects of an extensive community-based family planning program that used a large number of paid canvassers making home visits and eliminated fees for voluntary sterilization (54, 237). Rural Cheju was chosen for the study because it had one of the highest fertility rates in South Korea—a TFR of about 4.9 in 1973, compared with 4.0 for South Korea as a whole (54).

While increases in contraceptive use were similar in Cheju and the control area, where the regular national program operated, the decline in fertility was slightly greater in Cheju. Most of the increase in contraceptive use involved oral contraceptives, condoms, and especially female sterilization. Removing the $20 (US) charge for female voluntary sterilization led to an increase in the number of female sterilizations from 10 to 170 per month, and this high rate persisted for the duration of the project. The costs were similar in the experimental and control areas.

	Rural Cheju Province		Hapchun County	
	1975	**1980**	**1975**	**1980**
Contraceptive prevalence	18%	38%	27%	45%
TFR	4.9	3.2	4.7	3.3
Annual cost per capita ($US)	$ 0.47		$ 0.49	
Average annual cost per new client ($US)	$20.11		$20.36	
Cost per CYP ($US)	$ 9.35		$ 8.11	

These results suggest that a community-based delivery system providing free or low-cost supplies and services, including free sterilization services, can increase contraceptive use and reduce fertility at a reasonable cost (54, 237).

Preliminary Observations

On the basis of the available data and the observations of family planning experts, some preliminary generalizations can be made about the elements crucial to the success of family planning programs.

Availability and accessibility. The most successful programs generally provide a variety of contraceptive methods, including OCs, IUDs, condoms, barrier methods, and voluntary sterilization (61, 84, 197, 199, 352), although a few programs have been successful while emphasizing only one or two methods. Different methods appeal to different couples, and people's needs change during their reproductive years. Thus, offering the widest range of methods appeals to the most users. The availability of abortion also has contributed substantially to fertility declines in some countries, most notably China, South

Korea, and Tunisia (61, 137, 207)—even though it is not generally promoted as a family planning method.

Flexibility of service delivery. Successful family planning programs often provide contraceptive services and supplies through various delivery systems. These delivery systems include stationary clinics, village outreach workers, community-based distribution, mobile clinics, and social marketing. Certain delivery systems may suit cultural preferences in specific areas and overcome supply problems that could limit other systems. A variety of program delivery systems combined with widespread sales of contraceptives almost always leads to increasing contraceptive use and declining fertility (61, 295, 352).

Local involvement in management decisions. The involvement of regional and local family planning personnel in decision-making characterizes a number of successful programs. Such decisions include what types of contraceptives to provide, what types of delivery systems to use, and how to follow up acceptors. Local involvement probably contributes to success for three reasons: (1) information campaigns, delivery approaches, and services provided are more likely to be appropriate; (2) local personnel are likely to be more effective when they can see that their decisions and actions make a difference to program achievements; and (3) activities are more likely to be implemented when local rather than distant national leaders direct them (90, 92, 215, 352).

Appropriate management. Appropriate management at all levels clearly is essential to all program elements and thus is crucial for success. Supervisors who are trained in management are particularly important. Physicians are sometimes poor supervisors since they usually are not trained in management and have too many medical responsibilities. Effective, well-trained managers at the local level who respond to information from clients and workers may be most valuable (90, 215, 352).

Cost-Effectiveness of Family Planning Compared with Other Socioeconomic Changes

What are the relative costs of reducing fertility through family planning programs or through other activities that promote socioeconomic change? The few analyses that have been done show that family planning programs are usually the most cost-effective way to reduce fertility. Of course, this comparison does not take into account: (1) that programs such as those that promote widespread literacy, more education, or more productive employment have crucial primary goals other than lowering fertility; (2) that family planning programs also have other benefits, such as reducing maternal and child mortality; and (3) that these approaches are not really alternatives but in fact reinforce each other (352). As virtually all studies have found, family planning programs work best where socioeconomic status is relatively favorable.

Using data from various sources, George Simmons concluded that funds spent directly for family planning were more cost-effective in reducing fertility than funds spent on other types of programs. For instance, he estimated that $1,000 (US) spent on a nutrition program in a poor country would avert about one birth and $1,000 spent on a rural education program for women would avert about 6 births, while $1,000 spent on a family planning program would avert about 45 births (284).

In a study of 24 countries, Susan H. Cochrane and K.C. Zachariah of the World Bank compared the costs of averting births directly through family planning programs with the costs of averting births indirectly through programs that reduce infant mortality. Preventing infant deaths is assumed to avert births because parents need fewer births to reach the number of desired children and because continued breastfeeding helps prolong birth intervals. In all but one country, Kenya, it was found that the cost of averting a birth through a family planning program was lower than the cost of averting a birth by reducing infant mortality. In Costa Rica, for instance, the cost of averting a birth through family planning was estimated at $114; through preventing infant death, $338. In Kenya it appeared that averting a birth indirectly through certain health programs might cost less than averting a birth directly through family planning (66). These results suggest that, by themselves, programs to reduce infant mortality are not sufficient to lower fertility. Family planning programs can be a cost-effective complement to essential health programs.

A study by Gayl Ness and colleagues, covering 24 Asian countries, compared the effects of increasing family planning program effort with the effect of changing specific socioeconomic indicators. For example, they calculated that, if family planning staff were doubled, the program would gain 18 additional acceptors per 1,000 eligible couples each year. If the literacy rate doubled, the program would gain 16 additional acceptors per 1,000 eligible couples. The researchers did not calculate the costs of doubling family planning staff or doubling the literacy rate, but they assumed that doubling literacy would be more difficult and more expensive (215).

A study by David Wheeler compared the effect of comparable investments in female education or family planning programs on per capita income and population growth in 11 developing countries. According to his model, investing in female education would produce larger increases in per capita income in all countries. Investing in family planning programs would produce greater reductions in population growth in seven countries—Bangladesh, Brazil, Honduras, India, Indonesia, Malaysia, and Mexico. Investing in female education would produce marginally greater reductions in population growth in four of the least developed countries— Bolivia, Kenya, Malawi, and Togo. Wheeler concluded that family planning programs have a greater effect on population growth in societies where levels of female schooling and family planning availability are initially relatively high. In general, he concluded that: "the direct approach to population control (family planning) seems superior, although the indirect approach through education is undeniably effective as well" (346).

IEC activities. IEC campaigns, if they are backed up by good service delivery and good management, among other factors, contribute to program success. IEC activities that use mass media to convey appropriate messages can be especially useful, largely because they reach so many people. They tend to have a legitimizing effect if people have doubts about family planning. Also, messages for the mass media are more likely to be developed by professionals who have the technical and communications expertise to prepare and present effective messages (61, 90, 199, 215, 244, 352).

Researchers' attention is focusing increasingly on *why* family planning programs are successful in reducing fertility and less on *whether* they can reduce fertility. This new emphasis reflects the fact that over the last two decades family planning programs have proved themselves. Research has shown that family planning programs can reduce fertility as well as protect the health of mothers and children (265), and these benefits are increasingly recognized. At the same time, it has become clear that socioeconomic conditions are closely linked both with people's desire to limit their family size and with the efficiency of family planning programs. Family planning programs of varying strength are currently under way with government support in 127 countries worldwide (133), and organized volunteer efforts are under way in these countries and more. Thus the key issue now is how family planning programs should be designed, implemented, and managed so that they can best accomplish their objectives and achieve both improved health and lower fertility at a reasonable cost and in a manner acceptable to each society.

TABLES

Table 2. Methodologies for Studying the Demographic Impact of Family Planning Programs

Name	Question Asked	Examples of Data Used	Summary of Technique	Strengths	Weaknesses
Standardization (decomposition)	What parts of a change in fertility are due to: (1) changes in marital fertility, (2) changes in age structure of WRA, (3) changes in proportion of women married at each age, (4) changes in proportion of WRA in the population?	Demographic: CBR or TFR, proportion of women married in each age group.	Using observed fertility change, calculates what impact change in one demographic factor would have had if the other factors had remained constant.	Analysis fairly simple. Data usually available. Can be computerized.	Does not directly measure effect of contraceptive use or of program. Results sensitive to choice of time period analyzed.
Trend analysis	Does a change in the fertility trend coincide with the start of a family planning program?	Demographic: CBR or TFR.	Compares fertility trend before start of program with trend since start of program. Difference is attributed to program.	Analysis simple. Data usually available. Estimates net program impact.	Impact may be obscured if program grew slowly. Assumes no concommitant change in other influences on fertility. Results sensitive to choice of time periods analyzed.
Standard couple-years of protection estimate (SCYP)	How many births will be averted in a given year and subsequent years by program supplies and services provided in a given year?	Program statistics: method-specific acceptance and continuation rates. Demographic: ASMFR.	Calculates total CYP that will ever be provided by supplies and services delivered in a given year, taking into account ASMFR, overlap between contraceptive use and postpartum amenorrhea, and contraceptive effectiveness and continuation rates. Births averted are estimated by multiplying CYP by age-specific fertility rates.	Can be adapted to estimate net program impact.	Program statistics—both acceptance and continuation rates—may be unreliable or unavailable. Analysis moderately difficult.
Reproductive process analysis	How many births will be averted in one or more years by specific contraceptive methods supplied by program?	Program statistics: method-specific acceptance rates. Demographic: ASMFR, number of births to married women.	Uses life-table techniques to calculate continuation rates for specific program methods, usually IUDs. Then estimates increase in birth interval due to contraception. Then can calculate births averted per year per acceptor for each method.	Can be adapted to estimate net effect of each method.	Program statistics may be unreliable. Difficult to use for assessing overall program impact. Does not account for other influences on birth intervals, such as sterility, postpartum amenorrhea. Analysis difficult.

Note: Net program effect refers to the actual number of people who adopt family planning due to program activities. Gross program effect refers to the number of new users obtaining supplies from program sources, regardless of whether they used other sources previously or would have used nonprogram sources if the program were not available.

Table 2 (Continued)

Name	Question Asked	Examples of Data Used	Summary of Technique	Strengths	Weaknesses
Component projection	How many births will be averted in a given year through use of program supplies and services?	Program statistics: acceptance rate, continuation rate. Demographic: ASMFR, proportion of population married.	Taking into account characteristics of contraceptive use, produces an age-specific model of fertility change during a period of a woman's reproductive life. Usually involves computerized models such as CONVERSE.	Computer programs available for some techniques. Some techniques can be adapted to estimate net program effect. Outputs can include a full range of demographic variables, including fertility rates, age structure, and population size.	Program statistics may be unreliable. Analysis may be difficult. Many data needed. Some methods do not account for sterility, overlap between postpartum amenorrhea and contraceptive use, or trends in natural fertility and nuptiality.
Prevalence model	Given the level of contraceptive prevalence in an area, how many births are averted by contraceptive use in that area? What are sources of contraceptive supply?	Survey: contraceptive prevalence. Program statistics (optional): continuation rates, effectiveness rates.	Estimates annual births averted through a mathematical relationship between contraceptive prevalence, on one hand, and natural fertility modified by contraceptive effectiveness and sterility, on the other.	Analysis simple. Uses survey data, more accurate than program statistics. Few data needed. Can distinguish program from nonprogram effects if appropriate survey questions asked.	Out-of-date or poor quality survey data would make results unreliable.
Experimental design	What is the difference in fertility between two similar groups, one with a family planning program and one with a different program or no program?	Data needed depend on design of study. Usually, program statistics and demographic data are used.	Usually compares changes in crude birthrates or fertility rates in the two groups. Groups should otherwise be as similar as possible.	Controls for many direct and indirect confounding factors. Useful for pretesting program strategies. Output is net program effect.	In quasi-experiments, experimental and control groups may not be sufficiently similar to rule out confounding factors. Exposure of controls to program may dilute differences. Analysis difficult; many data often required to prove groups equivalent. Experimental programs may not be replicable in large population. Ethical and political problems involved. Providing services and gathering data can be expensive.
Multivariate areal analysis	What proportion of differences in fertility in different geographic areas is due to program factors and what proportion is due to socioeconomic factors?	Program statistics: acceptance rates, program expenditures, number of clinics. Demographic: CBR or TFR. Socioeconomic indicators: literacy, nonagricultural employment, urbanization, life expectancy, IMR.	Uses multiple regression techniques to measure association between various program and nonprogram factors and fertility. Geographic areas are the units of analysis.	Computer programs available. Estimates net program effect.	Requires many data. Sensitive to choice of indicators of program strength and socioeconomic status. Association of variables is not proof of cause-and-effect relationship. Strong correlation between independent variables can make results difficult to interpret.

ASMFR = age-specific marital fertility rate
CBR = crude birthrate
CYP = couple years of protection
GFR = general fertility rate
IMR = infant mortality rate
TFR = total fertility rate
WRA = women of reproductive age

Source: Forrest and Ross (25), Hermalin (112), Nortman (217), Ross (271), UN (327)

Table 8. Relationship Between Socioeconomic and Program Factors and Fertility or Contraceptive Use, as Measured by Multivariate Areal Analyses, Selected National Studies

			Independent Variables			
Country (Ref. No.)	**Period**	**Units of Analysis**	**SES or Demographic**	**Family Planning Program**	**Dependent Variables**	**Results**
Chile (310)	1960, 1970	25 provinces	% women in urban areas % women illiterate % women economically active % population economically active in agriculture % births without professional care	% women covered by family planning program in 1970	GRR	Illiteracy was associated with higher fertility; economic activity of women, with lower fertility. The combined association was stronger in 1970 ($R^2 = .79$) than in 1960 ($R^2 = .63$). With illiteracy and economic activity of women taken into account, neither % of women covered by the family planning program nor other SES variables accounted for any significant variation in GRR.
Colombia (227)	c. 1973	22 states	% of population in capital city No. of cities over 18,000 population % women age 20–24 who are married % women age 20–24 who are illiterate % of households with access to public utilities	Public program acceptance rates Private program (PROFAMILIA) acceptance rates	TFR	Five variables explained most of variation in TFR ($R^2 = .84$). % urban, % with access to public utilities, and public program acceptance rates were associated with lower fertility (beta coefficients = −.46, −.39, and −.15). The proportion of women married was associated with higher fertility (beta coefficient = .28). PROFAMILIA acceptance rates were associated with higher fertility (beta coefficient = .17), probably not a meaningful finding since contraceptors in low-fertility urban areas tended to use government program; those in high-fertility areas, PROFAMILIA. This creates a statistical association of PROFAMILIA with high fertility. Many variables had indirect effects in addition to direct effects—e.g., urbanization lowered fertility indirectly by increasing access to public services.
India (155)	1964–72	16 states	Electricity use per capita Death rate Hospital beds per 1,000 population Secondary school enrollment rate for females % of population living in more developed districts % of population in urban areas Surfaced road per 100 km^2	No. of locally run urban service points No. of state urban service points No. of rural field workers No. of rural physicians Program expenditures except salaries Cumulative years of service provided at all service points	Family planning program acceptance rates Rates of current use of family planning program services CBR	Program variables explain more variance than SES variables in acceptance and use rates (e.g., $R^2 = .21$ for independent effect of program variables on acceptance rates; $R^2 = .03$ for independent effect of SES variables). The interaction between SES and program variables was more important than the effect of SES or program variables alone (e.g., SES variables alone accounted for 14% of variance in use rates; program variables alone accounted for 19%; the interaction, for 65%).
Korea, Rep. of (93, 154)	1972–c. 1975	128 of 138 rural counties	TFR in 1970 Fertility rate for women age 30–39 in 1970 % women age 20–24 who are married % adult women with primary education TV sets per 100 households Child mortality rate % of population age 10–19 who are students	Coverage of program, 1972–74, as measured by person-months of field work per eligible woman No. of physicians and pharmacists per 10,000 population (as a measure of private-sector family planning activity)	TFR in 1975 Fertility rate for women age 30–39 in 1975	High concentrations of physicians and pharmacists were associated with lower TFRs (beta coefficient = −.23). Program coverage was associated with a smaller, marginally significant fertility reduction (beta coefficient = −.13). Much of variation in total fertility predated the period under study ($R^2 = .38$ for TFR in 1970). Program impact was greatest in areas of extremely high or low concentrations of physicians and pharmacists.

Table 8 Continued

			Independent Variables			
Country (Ref. No.)	**Period**	**Units of Analysis**	**SES or Demographic**	**Family Planning Program**	**Dependent Variables**	**Results**
Korea, Rep. of (125)	1970–75	53 villages	Average no. of children ever born to ever-married women age 15–49 Number of live births 1970–75 per ever-married women age 15–49 Average age[a] Average age at marriage[a] Average number of sons[a] 4 indicators of importance of village tradition and ritual 4 indicators of SES of residents such as illiteracy rate and average education level of women 5 indicators of SES of villages such as access to electricity and availability of modern farming technology 4 indicators of the frequency of personal contacts outside the family	% who did not know where to go for family planning advice[a] Average no. of family planning sources known[a] % who had contact with a family planning worker[a]	% ever-married women age 15–49 who ever used family planning % ever-married women age 15–49 who currently use of family planning	The 25 fertility, SES, demographic, and program variables accounted for 58% of variance in ever-use and 40% of variance in current use. Where the number of family planning sources known was greater, ever-use and current use of family planning were more common (beta coefficients = .52 and .45) Having more sons was associated with an increased likelihood of ever-use (beta coefficient = .49) Membership in village clubs was associated with a decreased likelihood of ever-use (beta coefficient = −.42), perhaps by exposing couples to social pressure against family planning. Current use was more common in villages with rules for handling community affairs (beta coefficient = .40) Individual-level analysis based on 2,554 ever-married women age 15–49 found that number of sons had the strongest association with use of family planning (beta coefficents = .27 for ever-use and .21 for current use). Family planning variables had a smaller but significant effect.
Mexico (36)	1976	8 regions	Mean years of school attendance of women interviewed in Mexican World Fertility Survey, 1976	Acceptors of program services per 100 WRA	Current users per 100 exposed women[b]	School attendance and program acceptance explain 89 percent of the regional variation in use of contraceptives. Effect of program acceptance is marginally significant.
Pakistan (276)	1967–c. 1972	37 of 45 districts	% of population in urban areas % males age 10+ who are literate % females age 10+ who are literate Secondary school enrollment rate % of population age 10+ in agricultural jobs % of women age 15–29 who are married	Personnel per 1,000 MWRA No. of female acceptors through family planning clinics per 1,000 MWRA Program expenditure per 1,000 MWRA	No. of children under age 5 per 1,000 MWRA	Together, SES and program variables accounted for 66 percent of the variation in fertility. School enrollment was most closely associated with lower fertility (beta coefficient = −.58). % of females who were literate also was associated with fertility decline (beta coefficient = −.30). Program variables did not significantly affect fertility. Family planning acceptance was closely associated with family planning personnel ratio (beta coefficient = .54). Family planning expenditures were not significantly associated with acceptance rates.
Sri Lanka (80)	1971	22 districts	% women age 20–24 who are married Infant mortality rate Population density % of females age 10–19 in school No. of maternity beds per 1,000 MWRA	No. of acceptors	TFR	Together, the SES and program variables accounted for 84% of variation in TFR. Where the proportion of women married was higher, TFR was higher (beta coefficient = .78). Program acceptance was associated with lower fertility levels (beta coefficient = −.12).

Table 8 Continued

			Independent Variables			
Country (Ref. No.)	**Period**	**Units of Analysis**	**SES or Demographic**	**Family Planning Program**	**Dependent Variables**	**Results**
Taiwan (111)	1961–65	78 urban areas and 204 rural areas	TFR in 1961 TFR in 1963 % females 12 years or older with primary education Population density Crude death rate (CDR)	Cumulative IUD acceptance rate, 1965 (for 15 months) Months of work per health worker per 100 married women, 1964 Months of presence of physicians per 100 married women, 1964	TFR in 1965	When 1961 and 1963 TFRs were not included in the analysis, significant associations with 1965 TFR were: For urban areas—CDR (beta coefficient = .38), population density (−.33), IUD acceptance rate (−.26), physician ratio (−.08), female education (−.07). For rural areas—CDR (.42), population density (−.30), IUD acceptance rate (−.22), physician ratio (−.12), health worker ratio (−.11). When 1961 and 1963 TFRs were included in a path analysis, significant associations were: For urban areas—1963 TFR (path coefficient = .80), IUD acceptance rate (−.24), CDR (.16), health worker ratio (.11). For rural areas—1963 TFR (.66), 1961 TFR (.13), IUD acceptance rate (−.13), CDR (.13), physician ratio (−.10), female education (.07).

[a] Of ever-married women age 15–49

[b] An exposed woman is defined as one who is married or in consensual union, living with her husband, and fecund; includes couples who have been sterilized for contraceptive reasons.

Beta coefficient = expected effect on dependent variable of a change of one standard deviation in the independent variable
CBR = crude birthrate
GFR = general fertility rate
GRR = gross reproduction rate: the average number of daughters that would be born alive to a woman if she were to pass through her lifetime conforming to the age-specific fertility rates of a given year.
MWRA = married women of reproductive age
SES = socioeconomic status
TFR = total fertility rate
WRA = women of reproductive age

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Minilaparotomy and Laparoscopy: Safe, Effective, and Widely Used

Editors' Summary. Voluntary female sterilization is the most widely used contraceptive method in the world. About 95 million women depend on it to control their fertility. The rapid spread of voluntary female sterilization over the last decade has been made possible by the surgical methods of minilaparotomy and laparoscopy, which are quick, highly effective, and safe. A major program challenge now is making high-quality services readily available to the many women who want them.

Female sterilization is widely used in diverse countries by couples who do not want more children. More than 15 percent of married women are sterilized for contraceptive reasons in Panama (29%), China (27%), South Korea (23%), Thailand (19%), Brazil (18%), El Salvador (18%), Fiji (18%), the United States (17%), Sri Lanka (17%), and Costa Rica (17%). Among married women in the US, voluntary sterilization is now by far the most widely used contraceptive method, having nearly doubled from 9.5 percent in 1976 to 17.4 percent in 1982.

Improved Methods

Minilaparotomy and laparoscopy, developed since 1960, have transformed female sterilization into a quick, safe outpatient procedure that can and should be performed under local anesthesia. Minilaparotomy, sometimes called "minilap," involves a small abdominal incision of less than 3 cm. Each fallopian tube is gently pulled to this incision, blocked by cutting and tying the cut ends or by applying clips or rings, and allowed to slip back into place. Laparoscopy involves inserting a telescope-like instrument into the abdomen, through which a doctor can see the internal organs and block the tubes by electrocoagulation or by applying rings or clips. Either procedure can be performed on most women in about 10 to 20 minutes, without an overnight hospital stay.

Both minilaparotomy and laparoscopy are highly effective. Pregnancy rates after one year are usually less than one per 100 women. The most common reasons for pregnancies after sterilization are a pregnancy already conceived but too early to recognize, a surgical error in identifying a fallopian tube, spontaneous rejoining of a severed tube, or formation of a new passage in the tube that allows sperm and ovum to meet. In the rare cases when pregnancies occur after sterilization, they are more likely to be ectopic (implanted outside the uterus) and therefore require prompt medical attention.

Minilaparotomy can be performed in various settings by doctors with basic surgical skills, using simple, inexpensive instruments. Also, minilaparotomy is the most appropriate method for use after childbirth. Laparoscopy is best suited to large urban hospitals with specially trained surgeons and many clients.

Women's Lives Saved

Minilaparotomy and laparoscopy are safe procedures. Most complications are minor, such as wound infection or slight bleeding, and they resolve easily and quickly. Major complications occur in less than one percent of cases. Sterilization is much safer than childbirth, which averages 400 deaths per 100,000 births in developing countries. By comparison, deaths associated with female sterilization are extremely rare—from 2 to 20 per 100,000 procedures. In Bangladesh, for example, female sterilization is so much safer than childbirth that an estimated 1,000 maternal deaths are prevented by every 100,000 sterilizations. In other words, sterilization saves the life of one in every 100 women who choose this family planning method.

There is no evidence that voluntary female sterilization causes long-term complications. Recent studies following women for up to two years suggest that menstrual cycles do not change as a result of sterilization. Women who previously used oral contraceptives (OCs) or IUDs will probably experience changes because they have stopped

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using these methods. Also, women with menstrual irregularities or other gynecological problems before sterilization tend to experience similar problems later.

Psychological problems are no more common among women who have been sterilized than among other women. In fact, with the fear of unwanted pregnancy removed, many couples are happier. Only a few women, about one to 3 percent, regret the procedure enough to consider reversal—often because of unexpected events such as remarriage or the death of a child.

Female sterilization is not easily reversed. Specially trained surgeons using delicate microsurgical techniques report that 50 to 70 percent of women undergoing reversal procedures become pregnant. Microsurgery is costly, however, and not readily available. Moreover, women are carefully selected for these procedures, and only those with the least tubal damage are selected. Reversal is most successful if less than 3 cm of the tube was damaged during sterilization. Clips and rings damage the tubes least, and these techniques appear to be the most easily reversed.

Sterilization research is focusing on nonsurgical methods such as the use of chemicals and plugs inserted through the cervix to block the tubes. Some of these new methods may be reversible without surgery, while others may be less reversible than surgical sterilization.

Expanding High-Quality Services

In many places the demand for female sterilization far exceeds the availability of services. For example, in Guatemala, Panama, and 10 states of Brazil, about half to three-quarters of married women not already sterilized who want no more children are interested in sterilization. In Kenya women may wait as long as 18 months for sterilization. Long waiting lists are common elsewhere, too.

To make high-quality services fully available to all women who are interested in voluntary sterilization requires a broad range of actions, including:

1. **Clarifying any ambiguous laws or amending any restrictive medical policies.** These deny women sterilization until they have had a specified number of children or until further pregnancies would threaten their health. Such policies, once common in the US and Europe, are now being dropped in recognition of the basic human right of individuals and couples to control their own fertility.
2. **Providing full, accurate information to policy-makers and health personnel about voluntary sterilization.** They should be made aware of the high level of demand for sterilization, couples' satisfaction with the procedure, and resulting better health and lower birthrates.
3. **Training surgical teams so that they can provide high-quality services, including either minilaparotomy or laparoscopy.** Short-term training, training in medical schools, and refresher courses have expanded greatly, but the need for more trained practitioners persists.
4. **Encouraging many channels for services.** These include private physicians, large urban referral centers, smaller or rural clinics and, in some areas, mobile teams.
5. **Ensuring women opportunities for both postpartum sterilization and interval sterilization** (sterilization more than six weeks after delivery). Then women do not need to become pregnant first or undergo cesarean section in order to be sterilized.
6. **Providing financial support for sterilization services, either directly or through health insurance.** Thus women would not be denied sterilization because they are too poor to pay. In South Korea, for example, the number of female sterilizations each year increased more than 20-fold after the government started covering the full cost.
7. **Using mass media as well as personal communication to inform people about voluntary sterilization.** Couples usually take several years to reach a decision on sterilization. They need information well ahead of time that answers their specific questions and concerns.
8. **Guaranteeing voluntary and informed consent before sterilization is performed.** Couples need sympathetic counseling, including information about vasectomy and other methods. Pressure should be avoided, especially in times of stress such as childbirth.
9. **Regularly evaluating the quality and availability of services.** Any deaths, serious complications, or clients' complaints should be investigated immediately so that problems, such as lack of sterile technique or inappropriate use of anesthesia, can be promptly resolved.

The rapidly growing number of voluntary female sterilizations shows that many women welcome this method of contraception. Therefore family planning programs and health professionals should take the necessary steps to see that high-quality services are made widely available in a manner that fully respects the rights of individuals and couples to determine their own family size.

End of Editors' Summary.

PREVALENCE

Approximately 95 million couples are currently protected from unwanted pregnancy by voluntary female sterilization (see Table 1). Thus female sterilization is by far the most widely used contraceptive method in the world. This estimate is based on survey data and family planning program statistics. More than 15 percent of married women of reproductive age rely on female sterilization in countries as diverse as Brazil, China, Panama, South Korea, Thailand, and the United States (see Table 2).

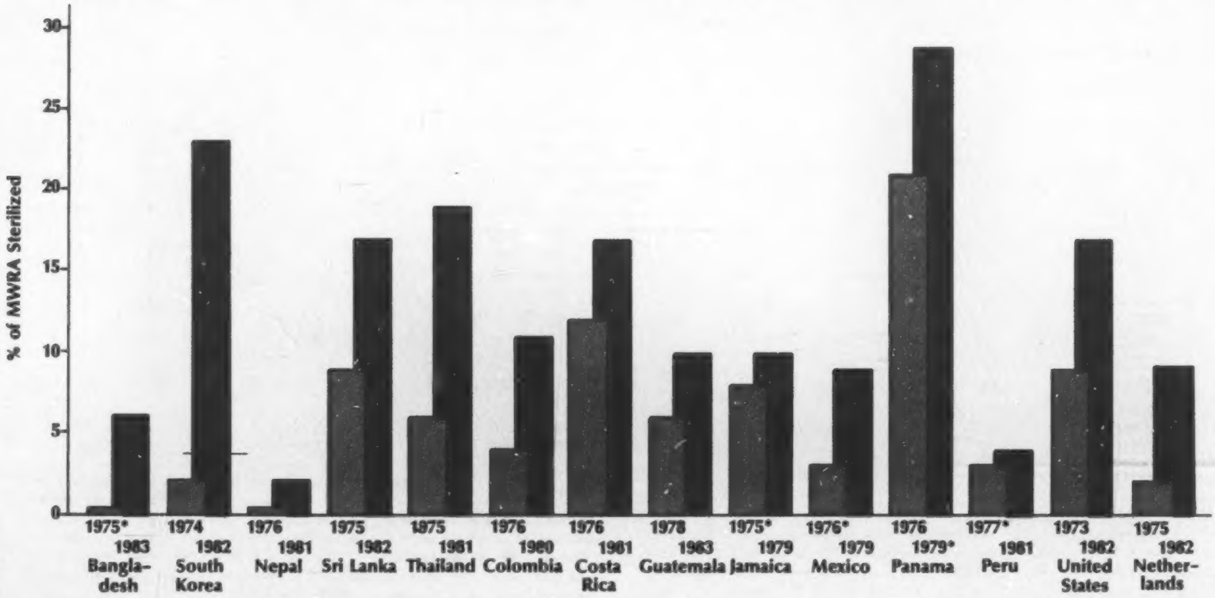
Male sterilization protects about 40 million couples from unwanted pregnancy, according to an update of a 1983 Population Information Program estimate (119, 324). Thus a total of 135 million couples, or about one of every six couples worldwide, rely on sterilization for contraception.

Over the past decade the use of voluntary female sterilization has increased dramatically in many Latin American and Asian countries and in the US (see Figure 1). In many countries the use of female sterilization is growing faster than use of other contraceptive methods. Most dramatically, in South Korea all of the 66 percent growth in contraceptive prevalence between 1974 and 1983 can be attributed to increasing female sterilization (85, 538). In Thailand increasing use of female sterilization accounted for half of the growth in contraceptive prevalence between 1975 and 1981 (85, 271). In fact, among 11 developing countries where data from successive surveys show rising rates of overall contraceptive use, the use of female sterilization rose markedly faster than use of other methods in eight, rose at about the same rate in two, and rose somewhat slower in only one (see Table 2). In three countries—Costa Rica, the Netherlands, and the US—where virtually all married women who want to avoid pregnancy are using contraception and there has been little change in overall contraceptive prevalence between surveys—increases in the use of female sterilization indicate that women are shifting from other methods. The rapid growth of female sterilization in many countries suggests that the estimate

Table 1. Estimated Number of Married Women of Reproductive Age (MWRA) Voluntarily Sterilized for Contraceptive Purposes Worldwide, 1984

	% of MWRA	Number of MWRA (in 1,000s)
DEVELOPING COUNTRIES		
AFRICA (sub-Saharan)	1	500
ASIA & PACIFIC		
China	27	46,400
India	14	20,000
Other Asia	6	7,300
All region	17	73,700
LATIN AMERICA & CARIBBEAN		
Brazil	18	3,200
Mexico	14	1,500
All other	10	2,700
All region	14	7,400
MIDDLE EAST & NORTH AFRICA	1	700
Subtotal	14	82,300
DEVELOPED COUNTRIES		
United States	17	6,000
United Kingdom	10	900
All other	4	5,900
Subtotal	7	12,800
WORLD	12	95,100

Figure 1. Increases in Prevalence of Voluntary Female Contraceptive Sterilization Among Married Women of Reproductive Age (MWRA), Survey Results in Selected Countries



*Survey field work continued into following year.

Sources: Anderson (14), Carrasco (85), Colombia (124), Ford (185), Huezo (237), Kamnuansilpa & Chamratrithirong (271), Lightbourne et al. (321), Mexico (355), Mitra & Kamal (362), Morris (366), Morris et al. (367), Nepal (384), Peru (415), Pratt et al. (436), Sri Lanka (515), United Nations (538), Van de Giessen (660).

of 95 million couples, which is based partly on surveys several years old, is a conservative one.

Developed Countries

Among developed countries, the popularity of voluntary sterilization in the **United States** stands out. As of 1982 female voluntary sterilization was the most widely used contraceptive method among married women of reproductive age (MWRA) in the US, employed by over 17 percent. Oral contraceptives were second at about 14 percent, and vasectomy, third at 10 percent (436).

Female sterilization has long been an important means of preventing pregnancy amoung US women. A survey of women born between 1900 and 1910—women who had children in the 1920s and 1930s—found that 15 percent had been sterilized by age 40, and 27 percent, by age 50. It is not clear how many of these sterilizations were primarily

Table 2. Reliance on Female Sterilization and Vasectomy Among Currently Married Women of Reproductive Age,[a] as Reported in Representative Sample Surveys, 1973-1983

Region, Country & Year (Ref. No.)	% Using			% of Contraceptors Using	
	Any Method	Vasectomy	Female Sterilization	Vasectomy	Female Sterilization
AFRICA					
Ghana 1979 (193)	10	0	1	0	5
Kenya 1977 (321)	8	0	1	1	13
Lesotho 1977 (321)	7	0	1	0	16
ASIA & PACIFIC					
Bangladesh					
1975-76 (85)	8	1	0	6	4
1979 (36)	13	1	2	7	19
1981 (36)	19	1	4	4	22
1983 (362)	19	1	6	6	33
China 1982 (120)	69	7	18	10	25
Fiji 1974 (85)	41	0	16	0	39
Indonesia 1976 (85)	26	0	0	0	1
Korea, Rep. of					
1974 (85)	35	3	2	9	5
1979 (367)	54	6	15	11	27
1982 (538)	58	5	23	9	40
Nepal 1976 (85)	2	2	0	67	4
1981 (384)	7	3	2	41	34
Pakistan 1975[b] (85)	5	0	1	2	17
Philippines 1978 (85)	36	1	5	2	13
Sri Lanka 1975 (85)	32	1	9	2	29
1982 (515)	55	4	17	7	31
Thailand 1975 (85)	33	2	6	6	19
1978 (367)	53	4	13	7	24
1981 (271)	58	4	19	7	32
LATIN AMERICA & CARRIBEAN					
Barbados 1980-81 (379)	46	0	13	1	31
Brazil					
Amazonas state 1982 (14, 366)	54	0	34	0	62
4 northeast states 1980 (14, 237, 366)	37	0	14	0	38
Paraná state (14, 237)	62	0	20	0	32
Piauí state 1979 (367)	31	0	15	0	50
São Paulo state 1978 (367)	64	0	16	0	24
Colombia 1976 (85)	42	0	4	0	9
1978 (554)	46	0	8	0	16
1980 (124)	49	0	11	1	22
Costa Rica 1976 (85)	64	1	12	2	19
1978 (367)	65	1	13	1	20
1981 (237)	65	1	17	1	27
Dominican Republic 1975 (85)	32	0	12	0	37
Ecuador 1979 (538)	34	0	8	1	23
El Salvador 1978 (367)	34	0	18	1	52
Guatemala 1978 (367)	18	0	6	2	33
1983 (428)	25	1	10	4	41
Guyana 1975 (85)	31	0	8	0	26
Honduras 1981 (524)	27	0	8	1	30
Jamaica 1975–76 (538)	38	0	8	0	21
1979 (367)	55	0	10	0	18
Mexico 1976–77 (85)	30	0	3	1	9
1978 (556)	41	0	7	0	18
1979 (355)	38	0	9	1	23
Panama 1976 (85)	54	0	21	1	39
1979–80 (36)	61	0	29	1	48
Paraguay 1979 (538)	36	0	2	0	6
Peru 1977–78 (538)	31	0	3	0	9
1981 (415)	41	0	4	0	10
Trinidad & Tobago 1977 (536)	52	0	4	0	8
Venezuela 1977 (548)	49	0	8	0	15
MiDDLE EAST & NORTH AFRICA					
Egypt 1980 (171)	24	0	1	0	4
Jordan 1976 (270)	25	0	2	0	7
Tunisia 1978 (538)	31	0	8	0	26
DEVELOPED COUNTRIES					
Belgium 1975 (538)	85	0	6	0	7
Czechoslovakia 1977 (538)	94	0	3	0	3
Finland 1977 (321)	80	1	4	1	5
France 1977 (321)	71	NA	4	NA	5
Hungary 1977 (321)	74	NA	1	NA	2
Italy 1979 (321)	78	NA	1	NA	1
Netherlands 1975 (321)	75	2	2	3	3
1982 (660)	78	11	9	13	11
Norway 1977 (45, 392)	71	2	4	3	6
Portugal 1979 (538)	66	0	1	0	2
UK (England & Wales) 1976 (165)	86	9	9	10	10
United States 1973 (186)	70	8	9	11	12
1976 (369)	68	9	10	13	14
1982 (436)	68	10	17	15	26

0 = <0.5

NA = not available

Percentage of contraceptors relying on female sterilization was found to be less than 0.5 percent by surveys in **Bulgaria** 1976 (321), **Haiti** 1977 (321), **Nigeria** 1981-82 (641), **Senegal** 1978 (321), **Spain** 1977 (538), **Sudan** 1978 (538), **Syria** 1978 (538), **Turkey** 1978 (321), and **North Yemen** 1979 (602).

[a] Women surveyed are currently in union (Latin America & Caribbean) or married (elsewhere), age 15-44 or 15-49. Exceptions are: **Costa Rica** 1976 and **Panama** 1976: women currently in union age 20-49; **Belgium** and **England & Wales**: women in first marriage, age 16-44; **Czechoslovakia, Finland, Italy,** and **Norway**: women in first marriage, age 18-44; **France**: women in first marriage, age 20-44; **Hungary**: women in first marriage less than age 40; **Netherlands** 1982: all women married between 1963 and 1973 irrespective of age; women age 18-37 married or in union; **Sudan**: fecund, nonpregnant, married women under age 51.

[b] Pakistan—Respondents were asked about use only if they spontaneously mentioned method in knowledge section of survey.

for family planning purposes and how many were for medical reasons (141, 453).

Between 1955 and 1970 the percentage of women sterilized for contraceptive reasons in the US remained fairly constant at about 4 to 5 percent (478, 562, 569). By 1976, however, the use of voluntary female sterilization for contraception had doubled, reaching 9.5 percent (369). These figures do not include hysterectomies (removal of the uterus) reportedly performed for medical reasons, some of which may actually have been performed for contraceptive purposes.

By 1982 use of voluntary female sterilization in the US had nearly doubled again: 17.4 percent of MWRA were relying on the method (436). These women accounted for nearly one-quarter of all married fertile women who wanted to avoid pregnancy. Among married women age 35 to 44, almost 40 percent rely on female sterilization (29). The increase in female sterilization between 1976 and 1982 was partly the result of a shift away from oral contraceptives, especially among older women (29). In Puerto Rico, where voluntary female sterilization had become common as early as the 1960s without any government support for services (523, 648), by 1982 some 39 percent of ever-married women age 15-49 were relying on the method (651).

Up-to-date survey data are not available on the use of female sterilization in most other developed countries. In the **UK** a 1976 survey found that 9 percent relied on female sterilization (165). The percentage is estimated to be at least 10 currently (95). In the **Netherlands** in 1982 about 9 percent of women age 18 to 37 who were married or in union relied on female sterilization, while about 11 percent relied on vasectomy (660). Surveys in other European countries, most from the mid or late 1970s, reported lower percentages (see Table 2).

Asia and the Pacific

Among countries of Asia and the Pacific, female sterilization is a major contraceptive method in China, South Korea, Thailand, Sri Lanka, Fiji, and India. In these countries and others the use of female sterilization has spread rapidly in recent years.

In **China** about 27 percent of married women of reproductive age are sterilized for contraceptive reasons, according to the China State Family Planning Commission. The only method more widely used in China is the IUD, reportedly used by about 29 percent of MWRA (119). The Chinese family planning program has emphasized IUDs and sterilization—both male and female—since the early 1970s. In the early and mid-1970s two to three million procedures were performed each year (611). In 1979 the government began the current "one-child campaign" intended to hold population growth to no more than 1.2 billion people by the year 2000. In 1983, 16.4 million female sterilizations and 9.3 million male sterilizations were performed (119). The government offers substantial incentives for sterilization (119), and there have been reports that in the last few years officials in some regions of China have applied extreme pressure to assure that couples are sterilized (560).

At 23 percent of MWRA, **South Korea** has the second highest level of female sterilization in Asia, as reported in a 1982 Contraceptive Prevalence Survey (538). This is a dramatic increase over the last decade. In 1974 only 2 percent of married women of reproductive age had been sterilized (85). Five years later, in 1979, the percentage had risen to 15 percent (367).

An Indian couple admires their new child. Around the world, many female sterilizations are performed just after childbirth. For some women this is the most convenient time. For others childbirth may be their only contact with health care services. (US AID)

Between 1977 and 1982, the last year for which service statistics are available, between 160,000 and 200,000 female sterilizations were performed each year in South Korea, compared with fewer than 6,000 each year in the early 1970s (394). The major reasons for this dramatic increase appear to be the introduction of laparoscopy for female sterilization in 1976 and, in the same year, an increase in government reimbursement of doctors that effectively eliminated any charge to clients (292). In 1976 the Korean government also began to introduce incentives to encourage male and female sterilization. In 1981 these incentives were increased (429).

In **Thailand** 19 percent of married women of reproductive age rely on female sterilization, as recorded in a 1981 survey (271). This is a rapid increase from about 6 percent in 1976 (85). Currently almost one-third of contraceptive users in Thailand rely on female sterilization.

There has long been a demand for female sterilization in Thailand, but until the mid-1970s services were limited to urban areas. A national survey in 1969-70 found that 18 percent of women in Bangkok were sterilized, but only 2 percent in rural areas. In the mid-1970s the National Family Planning Program began increasing the number of voluntary sterilization service points (311). By the early 1980s the national program, which concentrates on rural areas, was performing as many as 150,000 female sterilizations annually (471).

Female sterilization is an important contraceptive method in several other Asian countries. According to a 1982 Contraceptive Prevalence Survey, 17 percent of MWRA in **Sri Lanka** relied on female sterilization (515). This is almost twice the 1975 figure (85). In the Pacific island nation of **Fiji**, in 1974 18 percent of married women of reproductive age had been sterilized for family planning reasons (85). More recent data are not available. In **India**, where female sterilization is one of the major methods of contraception in the government family planning program, about 14 percent of MWRA have been sterilized for family planning purposes. This estimate is based on service statistics (406, 510).

In several other Asian countries the use of female sterilization has been growing rapidly in recent years. These include **Bangladesh**, where the prevalence of female sterilization grew from virtually zero in 1975-76 to about 6 percent of MWRA in 1983 (85, 362). The number of procedures performed annually grew fivefold between 1976 and 1981 (217, 281). Substantial increases in the number of female sterilizations also have occurred in **Indonesia** and **Nepal**, although prevalence is still low (363, 383, 394, 401, 608). In Nepal three-fourths of the 7 percent of MWRA using some family planning method rely on either vasectomy or female sterilization, with vasectomy somewhat more common (384) (see Table 2).

Latin America and Caribbean

Latin American countries have some of the highest rates of female sterilization in the world, despite great differences in culture, in the legal status of voluntary sterilization, and in the extent of services available. The highest prevalence of voluntary female sterilization in any country is reported in **Panama**, where, according to a 1979-80 survey, 29 percent of married women of reproductive age had been sterilized. This amounted to nearly half of all women using contraception (367). Panama was the first country to pass statutes specifically legalizing voluntary sterilization, in 1938 and 1941 (516). Prevalence rates for voluntary female sterilization are high in several other Central American countries as well, including **El Salvador** and **Costa Rica** (367) (see Table 2).

Elsewhere in Latin America and the Caribbean, voluntary female sterilization is a major family planning method in the Dominican Republic, Barbados, Colombia, and Brazil. Among Caribbean nations, in the Spanish-speaking **Dominican Republic**, in 1975 some 14 percent of MWRA relied on female sterilization (85), while in English-speaking **Barbados**, the figure was 13 percent in 1980-81 (379). In **Colombia**, where voluntary female sterilization has been available for many years chiefly through PROFAMILIA, a private association, 11 percent of MWRA relied on female sterilization in 1980 (124), up from 4 percent in 1976 (85). The number of procedures performed each year by PROFAMILIA grew dramatically in the mid-1970s and has remained roughly constant since 1977, averaging about 41,000 per year (268, 399).

In **Brazil** about 18 percent of married women of reproductive age have been voluntarily sterilized, according to estimates based on surveys of 10 Brazilian states (366). Female sterilization is equally common in a rich, largely urban state such as São Paulo and in a poor, largely rural state such as Piauí (see Table 2). Voluntary female sterilization has become widespread even though, until 1984, Brazil's Code of Medical Ethics required that three doctors declare an "exceptional" therapeutic need before sterilization could be performed (516). Many women had cesarean-section deliveries since sterilization after cesarean section did not require formal statements and was eligible for coverage under various health insurance plans (262, 263, 468).

Africa and the Middle East

Among most North African and Middle Eastern nations, voluntary sterilization—female or male—is uncommon. The highest rate of female sterilization may be in **Tunisia**, which has had a comprehensive family planning program since the 1960s and introduced sterilization in 1973 (634). In 1978, 8 percent of married Tunisian women of reproductive age relied on female sterilization (538). In one province, Jendouba, in 1979 over 16 percent of MWRA had been sterilized (367).

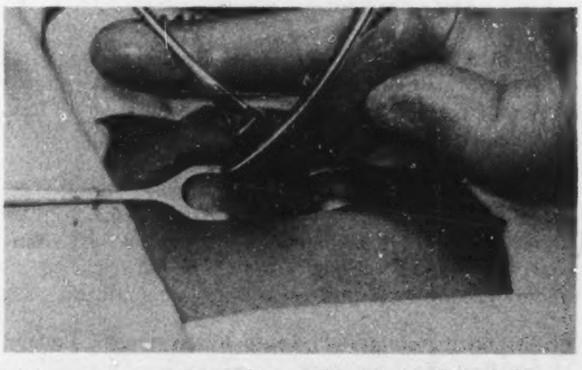
Data for other African nations are scarce, but, based on World Fertility Survey results for **Kenya**, **Lesotho**, and **Sudan**, female and male sterilization appear to be rare (277, 312, 525). African doctors attending the Conference on Reproductive Health Management in Sub-Saharan Africa, in November 1984, expressed growing interest in voluntary sterilization, however. They recommended more attention to training, counseling, and the provision of facilities for voluntary sterilization, as well as other family planning methods, in order to help reduce high rates of maternal and infant mortality in sub-Saharan Africa (333, 358). (Abstracts of the papers delivered at the conference, which was sponsored by the World Federation of Health Agencies for the Advancement of Voluntary Surgical Contraception, are available on request.)

DESCRIPTION OF FEMALE STERILIZATION METHODS

Female sterilization consists of two steps:

1. reaching the fallopian tubes and
2. blocking, or occluding, the tubes so that sperm and ova cannot meet.

To reach the fallopian tubes, doctors can use an abdominal, vaginal, or cervical approach. To block the tubes, doctors can use simple ligation (tying with a surgical thread) and excision (removal of part of the tube), electrical methods, or mechanical devices (rings or clips). Both minilaparotomy and laparoscopy are abdominal approaches. They involve a small abdominal incision to approach the tubes and, with laparoscopy, an optical instru-



Minilaparotomy requires only a small incision and simple instruments. It is suited to settings ranging from urban hospitals to rural health posts, and it is the preferred postpartum procedure.

ment. With minilaparotomy, now widely used in developing countries, the fallopian tubes are usually blocked by ligation or mechanical devices. With laparoscopy, either electrocoagulation or mechanical devices can be used. Both procedures can usually be performed with local anesthesia on an outpatient basis.

Approaches to the Fallopian Tubes

For years the only method of sterilization was the traditional laparotomy, involving a 5 to 10 cm incision in the abdomen. Technological advances and the need for simpler methods to be used in developing countries led to the development of other abdominal approaches—minilaparotomy and laparoscopy. These procedures have markedly reduced complications and shortened recovery time.

Minilaparotomy. Minilaparotomy (also called minilap) is a safe and simple procedure. Developed in the 1970s, minilaparotomy requires only a small transverse incision, no more than 5 cm long and usually much smaller, made just above the pubic hairline. Using an instrument inserted through the cervix, the doctor moves the uterus to bring each fallopian tube into the abdominal incision. Part of the tube is pulled out of the abdomen with a clamp, hook, or the doctor's finger, where it is blocked by ligation, clips, or rings, and then replaced in the abdomen (see photo, p. C-130). The abdominal incision is closed with either absorbable or nonabsorbable sutures. The operation takes an average of 10 to 20 minutes, although some doctors can perform a minilaparotomy in less than 10 minutes. Women can usually leave the clinic or hospital two to three hours after surgery (100, 249, 285, 341, 403, 512, 558).

Minilaparotomy can be performed at any time including the period after childbirth or abortion. In the first few days postpartum, when the uterus and tubes are high in the abdomen, a slightly different procedure is used. A one to 3 cm curved incision is made in the lower half of the umbilicus. The doctor can easily move the uterus with a finger to bring the tubes to the incision. The tubes are usually blocked by ligation and excision (100, 285).

The simplicity, safety, and effectiveness of minilaparotomy make it an ideal method for most women. Because the incision is smaller, minilaparotomy causes far fewer complications than laparotomy, and the two methods are equally effective. Minilaparotomy may be difficult when the woman is obese. It also may be difficult when her tubes have been damaged by infection or surgery and are immobilized by pelvic adhesions—abnormal bands of connective tissue that form after injury or disease involving the pelvic organs. In such cases the doctor can complete the sterilization either by enlarging the incision slightly or by using a different approach to the tubes.

Laparotomy. Because a laparotomy incision is larger than a minilaparotomy incision, general or spinal anesthesia is usually necessary. Instead of bringing the tubes to the incision, as with minilaparotomy, the instruments are introduced into the abdominal cavity to reach the tubes. Any type of occlusion technique can be used. For nearly all women minilaparotomy or laparoscopy is preferable since these approaches require less operating and recovery time and cause fewer complications, mainly because general anesthesia is not needed. Laparotomy may be necessary if other approaches have failed or if there are complications requiring additional surgery.

Laparoscopic sterilization can be done quickly, complications are rare, and the procedure leaves only a very small scar. (P. Coleman)

Laparoscopy. First widely used for female sterilization in the early 1960s (407, 517), laparoscopic sterilization involves inserting a laparoscope into the abdomen. The laparoscope is a slender stainless-steel tube containing fiber-optic cylinders that transmit light into the abdomen and a set of lenses that enables the doctor to see inside the abdominal cavity. Two types of laparoscopes are used. With one type, the doctor can insert forceps or clip or ring applicators through a channel of the laparoscope. Only one abdominal incision is necessary—the one-puncture, or one-incision, technique. With the other standard type, the doctor can see the fallopian tubes but has to make a second abdominal puncture to insert instruments for blocking the tubes—the double-puncture, or double-incision, technique. Applying clips properly—at a 90° angle on the tube—is easier with the double-puncture technique (57, 206).

After anesthesia is administered, the first step in laparoscopy is inserting a needle into the abdomen and inflating the abdomen with one to 3½ liters of gas—carbon dioxide, nitrous oxide, or room air. This insufflation separates the abdominal wall from the abdominal organs, makes space for safe introduction of the laparoscope, and provides a clear view of pelvic organs. A trocar, a pointed surgical instrument, encased in a metal sleeve called a cannula, is inserted through a superficial skin incision of about one to 1.5 cm in the lower rim of the umbilicus or just below. The trocar is then removed, and the laparoscope is inserted through the cannula. The second incision, if required, is usually made midway between the umbilicus and the pubic bone, either to the left or right of the midline. Alternatively, the trocar may be inserted into the abdomen and the peritoneum insufflated through the laparoscope. This technique is particularly useful with obese women because the insufflation needle may not reach through the layers of fat to the peritoneum (156, 241, 480). Proper insertion of the insufflation needle and the trocar is critical. Because the doctor cannot see into the abdomen, he or she may puncture a blood vessel or abdominal organ during insertion. This complication is rare but serious. Electrocoagulation, clips, or rings can be used to occlude the tubes. After occlusion the gas is allowed to leave the abdomen. The instruments are removed, and the incision is closed with one or two absorbable sutures. Scarring is minimal.

Open laparoscopy. Open laparoscopy, which combines the minilaparotomy and standard laparoscopy approaches, was developed in 1971 to reduce the chances of bowel or blood vessel injury when the insufflation needle or the trocar is inserted into the abdomen (220, 222). A small incision is made either through the lower part of the umbilicus or just below, and the abdominal cavity is opened under direct vision. A special cannula is inserted through the incision into the abdomen, and the edges of the incision are sutured around the cannula, creating an airtight seal. The cannula serves as a passageway for the insufflation gas, the laparoscope, and the instruments used for occluding the tubes. With this method, the doctor can look into the abdomen while inserting the cannula and is less likely to puncture organs or blood vessels. Open laparoscopy may be safer than closed laparoscopy, but no well-designed comparative studies have been done. The procedure takes slightly longer than standard laparoscopy (221, 285, 411, 472) and is not widely used.

Vaginal approaches. Use of vaginal approaches has declined with the development of minilaparotomy and laparoscopy. Two types of vaginal sterilization have been used—colpotomy (also called culdotomy) and culdoscopy. With both techniques a 3 to 5 cm incision is made in the vaginal wall behind the cervix. The tubes are located, pulled through the incision into the vagina, and occluded by ligation, clips, or rings. Culdoscopy involves a culdoscope, which is passed through the incision to help the doctor find the tubes. Colpotomy is done without the culdoscope.

Vaginal approaches are not as safe or effective as minilaparotomy or laparoscopy. Pelvic infection after vaginal sterilization is more common because bacteria from the vagina enter the pelvic cavity. Also, men often will not abstain from intercourse for the recommended 2- to 4-week period after the procedure. Moreover, vaginal approaches cannot be used postpartum because the enlarged uterus makes it difficult to reach the tubes. Vaginal methods are generally more difficult to perform and so require more training than minilaparotomy and laparoscopy. Subsequent pregnancy rates are slightly higher. Technical failures—inability to complete the sterilization with the chosen procedure—occur more often. In addition, the knee-chest position required for culdoscopy is very uncomfortable for most women (5, 53, 70, 103, 231, 274, 285, 343, 472, 591, 596, 600).

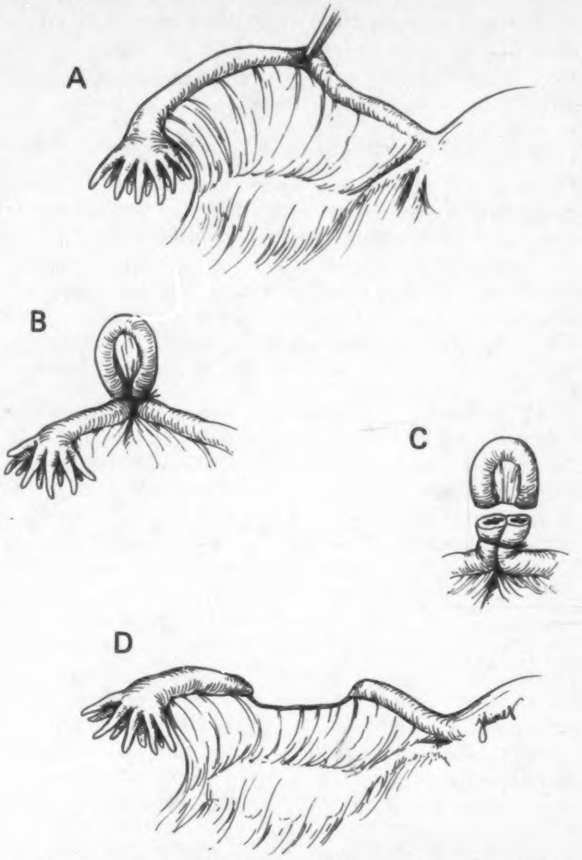
Transcervical methods. Nonsurgical sterilization—occluding the fallopian tubes through the cervix—is still experimental (see pp. C-148–150).

Occlusion Techniques: Ligation

Ligating, or "tying," is the oldest and most common technique for blocking the tubes. It is safe, inexpensive, and does not require special equipment or extensive surgical training. Ligation is not used with laparoscopy, however.

Pomeroy technique is the most widely used ligation technique because it is simple and very effective. First described in 1930 (63), the Pomeroy technique involves using absorbable catgut sutures to tie the base of a loop of tube near the midportion (ampulla) and cutting off the top of the loop (see Figure 2). The suture material is absorbed rapidly, reducing the chances of inflammation and formation of fistulas (openings) in the tubes. After the sutures are absorbed, the ends of the tube pull apart. The Pomeroy technique destroys about 3 to 4 cm of tube.

Figure 2. Steps in the Pomeroy Ligation Technique



In a Pomeroy ligation the fallopian tube is lifted (A) and formed into a loop that is tied with sutures (B). The top of the loop is cut off (C). After the sutures are absorbed, the severed ends of the tube pull apart (D), and scar tissue seals the openings in the tubes.

Pritchard's technique, also known as the **Parkland technique**, involves separating a small segment of the tube from the mesosalpinx (the broad ligament surrounding the tube). Each end of the segment of tube is ligated with chromic suture, and the portion of tube between the sutures is removed (437). This technique is widely used in the US (78).

Irving technique is more difficult to perform than Pomeroy ligation. The tube is severed, and the proximal (uterine) end is buried in the muscle wall of the uterus. The other end is buried in the mesosalpinx (285). The technique is extremely effective but difficult to reverse.

Cooke technique involves severing the tube and burying the proximal end in the round ligament (100, 460, 486).

Uchida technique involves severing the tube and burying the proximal end in the broad ligament (100, 285, 537). The Uchida technique is widely used in Japan, where it was developed in the mid-1940s (285), but little used elsewhere (486).

Madlener technique involves lifting up the tube into a loop, crushing the base of the loop with a clamp or forceps, and ligating the tube with nonabsorbable suture material (486). This technique has a high failure rate and is now seldom used (285).

Fimbriectomy involves complete removal of the fimbriae (finger-like projections at the ovarian end of the fallopian tubes) (352, 519). Some studies report high pregnancy rates, but at the same time the method is very difficult to reverse. In a similar procedure, **salpingectomy**, all of the tube is removed. This technique requires laparotomy, has more side effects than other ligation techniques, and cannot be reversed (285).

Occlusion Techniques: Electrocoagulation and Thermocoagulation

Electrocoagulation involves the use of high-frequency electrical current to coagulate and block the tubes. This method is generally used with laparoscopy. The first technique available, **unipolar coagulation**, was developed in the 1960s (188, 407). Electric current passes from the laparoscopic forceps through the woman's body to a ground plate placed under her lower back, thigh, or buttocks. Unipolar electrocoagulation damages 20 to 50 percent of each fallopian tube (330, 487, 609). Thus it is very effective, but reversal is unlikely. Because the woman is part of the electrical circuit, burns to other organs, especially the bowel, can occur. This is a rare but serious complication (328, 422).

Concern about bowel burns led to the development of **bipolar coagulation** in the early 1970s as well as to clips and rings. With bipolar coagulation (459), electric current passes between the two jaws of the forceps, and only a small portion of the tube is exposed to the current. Accidental burns occur only if the physician touches the bowel or other organ with the forceps. Bipolar coagulation destroys less tubal tissue than unipolar coagulation does. To be sure of complete occlusion, however, some doctors burn the tube in three or four places (229, 474, 505).

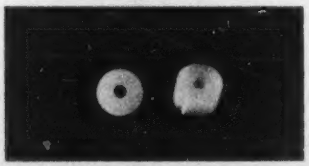
Thermocoagulation destroys the tube with heat rather than electricity. Thus shocks and electrical burns to other organs cannot occur. Thermocoagulation has not been widely used, and its effectiveness is not established (454, 517, 518, 544).

With both electrocoagulation and thermocoagulation, the tube can be occluded by coagulation only, by coagulation and severing of the tube, or by coagulation with removal of a segment of tube.

Occlusion Technique: Tubal Ring

The tubal ring, trade-named the Falope-Ring, is the most widely used mechanical occlusion device (see photo, below). Also known as the silastic band and the Yoon band, the ring was developed in 1973 by In Bae Yoon of the Johns Hopkins School of Medicine and other researchers (306, 430, 604, 605, 607).

The ring can be used with minilaparotomy, laparoscopy, and vaginal approaches (605). With all approaches the ring is applied in the same way, using a special applicator. A loop of fallopian tube is lifted up, drawn into the cylinder of the applicator, and the ring is slipped onto the base of the loop. A special laparoscope, the Laprocator, has been designed to apply rings. The Laprocator is less expensive to buy and maintain than other laparoscopes (397, 398). The ring is usually applied to the ampulla or ampullary-isthmic junction of the tube, 2 to 3 cm from the uterus (486, 604, 606).



Silastic tubal rings are stretched, placed over a loop of fallopian tube, and released. The ring contracts, blocking the tubal opening.

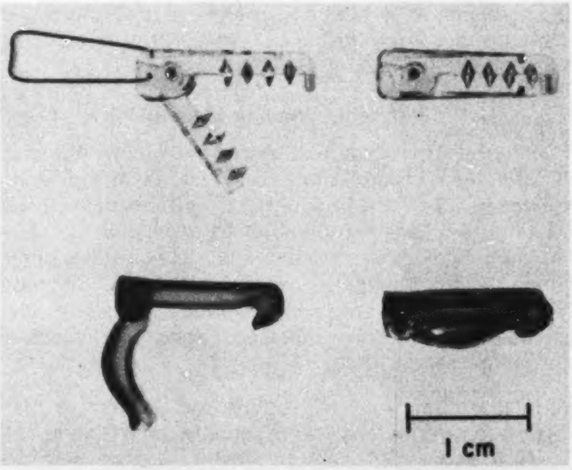
A ring destroys about one to 3 cm of the tube (285). Restoring fertility is more likely than with electrocoagulation or the more complex ligation techniques. The rings usually are not difficult to apply unless the woman has pelvic adhesions or enlarged tubes. Transection (severing) or tearing of the tubes and short-term postoperative pain are the most common complications (see p. C-142).

Occlusion Technique: Clips

The first female sterilization with clips was performed in the US in 1953 (175). Research and repeated modifications led to the spring-loaded and the silicone-titanium clips, both of which are safe, effective, and easy to apply. A clip is placed on the isthmus of each tube, 2 to 3 cm from the uterus, with a special applicator. Although originally designed for laparoscopic use, clips can be used with minilaparotomy and vaginal approaches (244, 247, 318, 320).

Clips cause considerably less damage to the tubes than most other occlusion techniques. Less than one cm of the tube is destroyed, compared with approximately one to 3 cm with rings, 3 to 4 cm with Pomeroy ligation, and 3 to 6 cm with electrocoagulation (178, 180, 486). Thus the potential for reversing clip sterilization is greater (see box, p. C-148).

Spring-loaded clip. The original spring-loaded clip, designed by Jaroslav F. Hulka and George Clemens, was first used in 1972. The current model consists of two plastic jaws with interlocking teeth. The jaws are held together by a stainless-steel spring, which is pushed forward to lock the clip in place over the tube (see photo, below).



Two types of clips are currently being used for female sterilization. The spring-loaded clip consists of two plastic jaws that are locked over the tube by a stainless-steel spring (top). The Filshie clip is made of titanium lined with silicone rubber (bottom).

Filshie clip. G. Marcus Filshie began working on the Filshie clip (also known as the Nottingham clip) in 1973. The clip is made of titanium, with inner surfaces lined by silicone (see photo, p. C-133). When the clip is closed, the upper jaw closes over the tube and latches under a hook in the lower jaw. The silicone is compressed. As the enclosed tubal tissue atrophies, the silicone expands, keeping the tube blocked. Six models of the clip have been tested in over 10,000 women. The latest models have hinged jaws that open and close easily. This allows the doctor to remove incorrectly placed clips easily and reposition them (179). The Filshie clip is big enough to occlude tubes that are enlarged after pregnancy or pelvic infection (177, 178, 180).

Other clips have been used for sterilization. One of the earliest, a **tantalum hemoclip**, was originally designed to occlude blood vessels during surgery. Tantalum clips did not block the fallopian tubes completely, and pregnancy rates were high (114, 343). Another plastic clip, developed by W. Bleier, is no longer manufactured (65). Some researchers have reported high pregnancy rates with the **Bleier clip** (2, 309) and problems with the applicator (137, 136).

Hysterectomy

Hysterectomy, the removal of the uterus, has been used in the past for female sterilization. The operation can be performed through a laparotomy or a vaginal incision. General anesthesia is usually required. Hysterectomy is more difficult, risky, and expensive than other methods of female sterilization. It should not be used unless the woman has a gynecological disease that requires removal of the uterus (26, 168, 228, 533, 570).

EFFECTIVENESS

Female sterilization is a very effective contraceptive method. With the most widely used techniques, fewer than one woman in 100 will become pregnant in two years after surgery. This compares with pregnancy rates between 2 and 20 per 100 in the first year of use of various other methods, according to large surveys in the US and the Philippines (204, 297).

Differences Among Methods

Differences in effectiveness among the widely used sterilization methods are slight. Comparing them is difficult, however. Both the approach to the tubes—minilaparotomy or laparoscopy—and the technique of occluding the tubes can affect failure rates. Also, studies differ. Some do not distinguish among postpartum, postabortion, and interval sterilizations (more than six weeks after childbirth or abortion); others do. Rates and lengths of follow-up vary (108, 421).

Minilaparotomy may be slightly more effective than laparoscopy. With laparoscopy, equipment problems and surgical errors, especially by doctors just learning the technique, account for the slightly higher pregnancy rates (103). In four recent large comparative studies, pregnancy rates have ranged from 0.2 to 0.8 per 100 women for minilaparotomy and from 0.2 to 1.3 for laparoscopy (see Table 3) (114, 375, 376, 535, 550).

The most widely used tubal occlusion techniques—Pomeroy ligation, electrocoagulation, clips, and rings—have similar failure rates (see Table 3). A large multicenter study of laparoscopy reported failure rates of 0.2 for the spring-loaded clip, 0.2 for unipolar coagulation, and 0.4 for the ring (58). Similarly, in a South Korean survey of over 390,000 laparoscopies, pregnancy rates were 0.15 for unipolar coagulation and 0.12 for the ring (567).

Clips

With the current model of the spring-loaded clip (marketed in the UK as the Rocket clip and in the US as the Wolf clip), pregnancy rates are lower than 0.5 per 100 women (58, 192, 212, 320). Due to manufacturing errors, some earlier versions of this clip did not block the tube completely (245, 247), and pregnancy rates as high as 27 per 100 women were reported (114).

With various models of the Filshie clip, pregnancy rates in different studies have ranged from 0 to 8.6 per 100 women. Overall, more than 10,000 women worldwide were sterilized with early models of the Filshie clip, with a pregnancy rate of 0.6 per 100 (177, 178, 180, 253, 291, 350, 439). With the latest design, the Mark 6, pregnancy rates are low. In two recent studies involving a total of almost 1,200 women, only one pregnancy has been reported (227). Since January 1983, 43,000 sterilizations have been performed with the Mark 6 clips. Only 20 pregnancies have been reported to the manufacturers (621).

Electrocoagulation

While bipolar electrocoagulation is safer than unipolar (see p. C-142), some evidence suggests that it may be less effective. With unipolar coagulation, most studies report pregnancy rates under one percent (see Table 3). With bipolar electrocoagulation a South Korean study of over 36,500 women and a smaller Swiss study reported pregnancy rates of 0.4 per 100 women or lower (229, 567). Two smaller studies report much higher rates—4 and 10 per 100 (28, 212).

Pregnancies after bipolar coagulation may occur because the tube is not completely blocked. The doctor may have to burn each tube in three or four places, for a total of at least 3 cm, to close it completely (505, 507). Also, placing the forceps directly across the tube, rather than on the mesosalpinx (the upper part of the broad ligament) is important. Some researchers suspect that, even when the forceps are correctly applied, complete obstruction of the tube may not occur until scar tissue forms, 8 to 12 weeks after surgery (28).

Reasons for Pregnancies

Pregnancies after sterilization occur for various reasons, primarily because:

- the woman is already pregnant at the time of the operation,
- surgical errors are made, usually by confusing another pelvic structure with the fallopian tube,
- equipment fails,
- the ends of the fallopian tube reconnect spontaneously (anastomosis),
- fistulas (abnormal openings) develop in the tube, allowing sperm and ovum to meet.

Pregnancies unrecognized at the time of sterilization account for 8 to 45 percent of reported failures (58, 79, 107, 114, 180, 212, 240, 245, 359, 409, 492, 535). These pregnan-

Table 3. Pregnancy Rates Following Minilaparotomy and Laparoscopy, Selected Studies, 1973-1985

Author & Date (Ref. No.)	Place	No. of Women	Years Since Sterilization	Timing of Sterilization		Life-Table Rate at One Year[a]	Pregnancies per 100 Women[a]
MINILAPAROTOMY							
With Pomeroy or Modified Pomeroy Ligation							
Cheng et al. 1977 (103)	Singapore	7,989	3 years	Various		0.2	0.2
Chi et al. 1980 (114)	International	2,579	Up to 6 years	Various		0.2	0.2
Domenzain et al. 1982 (159)	Mexico	779	Up to 5 years	Interval		0	0.3
Trias 1984 (535)	Colombia	2,779	Up to 10 years	NA		0.1	0.8[b]
With Fimbriectomy							
Chi et al. 1980 (114)	International	517	Up to 6 years	Interval	69%	0	0.2
With Ring							
Chi et al. 1980 (114)	International	892[c]	Up to 6 years	Various		0.5	0.3
Mumford & Bhiwandiwala 1981 (375)	23 countries	1,258	Up to 2 years	Interval	45%	0.4	0.3
				Postpartum	52%	0.7	0.7
				Postabortion	3%	NA	NA
LAPAROTOMY							
With Pomeroy Ligation							
Gunston et al. 1983 (212)	South Africa	8,385[d]	Up to 5 years	Interval	17%	NA	0.1
				Postpartum	72%	NA	0.1
With Pomeroy or Unspecified Ligation Technique							
Hughes 1977 (240)	United Kingdom	4,419	Up to 7 years	Postpartum	65%	NA	0.2
Vessey et al. 1983 (550)	United Kingdom	743[e]	Up to 7 years	Interval	81%	0.3[f]	0.5
LAPAROSCOPY							
With Electrocoagulation							
Bhathena et al. 1985 (49)	India	1,592	Up to 10 years	Interval	>90%	NA	0.1[g]
Bhiwandiwala et al. 1982 (58)	27 countries	6,542	Up to 1 year	Interval	85%	0.2	0.2
				Postpartum	5%	0.3	0.3
				Postabortion	9%	0.5	0.5
Chi et al. 1980 (114)	International	4,309	Up to 6 years	Various		0.2	0.2
Chi et al. 1981 (115)	International	3,594	Up to 6 years	Interval	88%	0.3	0.3
				Postpartum	6%	0.5	0.5
				Postabortion	7%	0.9	0.9
Cole et al. 1979 (122)	6 Latin American countries	5,830[b]	Up to 1 year	Various		0.3[h]	NA
Cunanan et al. 1980 (139)	US	4,992	≥39 months	Various		NA	0.2
Hughes 1977 (240)	United Kingdom	5,474	Up to 7 years	Various		NA	1.2
Lee & Hagen 1984 (310)	US	1,092	Up to 5 years	Various		NA	0.4
Vessey et al. 1983 (550)	United Kingdom	776	Up to 7 years	Interval	81%	0.5[f]	1.3
Whang 1980 (567)	South Korea	261,681[i]	Up to 3 years	NA		NA	0.2[i]
		36,598[j]				NA	0.4[j]
With Spring-Loaded (Rocket) Clip							
Bhiwandiwala et al. 1982 (58)	27 countries	630	Up to 1 year	Interval	94%	0.2	0.2
				Postpartum	1%	0	0.0
				Postabortion	4%	0	0.0
Chi et al. 1980 (114)	International	457	Up to 6 years	Various		0.6	0.7
With Ring							
Bhathena et al. 1985 (49)	India	7,409	Up to 10 years	Interval		NA	0.1
				Postpartum		0	0.0
				Postabortion		0	0.0
Bhiwandiwala et al. 1982 (58)	27 countries	5,046	Up to 1 year	Interval	69%	0.4	0.4
				Postpartum	8%	0.6	0.5
				Postabortion	21%	0.4	0.4
Chi et al. 1980 (114)	International	3,536	Up to 6 years	Various		0.3	0.3
Chi et al. 1981 (115)	International	4,106	Up to 6 years	Interval	81%	0.4	0.5
				Postpartum	4%	2.1	2.7
				Postabortion	15%	0.8	0.8
Cole et al. 1979 (122)	6 Latin American countries	1,902	Up to 1 year	Various		0.8[h]	NA
Gunston et al. 1983 (212)	South Africa	591	Up to 5 years	NA		NA	0.2
Mumford & Bhiwandiwala 1981 (375)	23 countries	4,262	Up to 2 years	Interval	73%	0.5	0.5
				Postpartum	7%	1.5	1.4
				Postabortion	21%	0.5	0.6
Pattinson et al. 1983 (409)	South Africa	8,509	1 to 3 years	NA		NA	0.3[g]
Poliakoff et al. 1978 (430)	US	1,976	Up to 3 years	NA		0.4	0.6
Trias 1984 (535)	Colombia	42,135	Up to 10 years	NA		0.7	1.3[b]
Whang 1980 (567)	South Korea	91,970	Up to 3 years	NA		NA	0.1

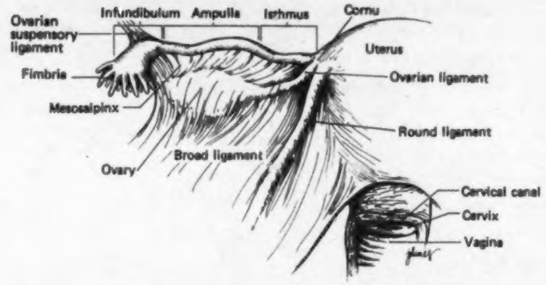
NA = not available

[a] Luteal phase pregnancies excluded, except as noted
[b] 36-month life-table rate
[c] Technical failures excluded
[d] Includes unspecified number of fimbriectomies
[e] Includes 106 procedures with other tubal occlusion techniques
[f] 12-month Pearl rate
[g] Possible luteal phase pregnancies included
[h] 24-month life-table rate
[i] Unipolar electrocoagulation
[j] Bipolar electrocoagulation

cies, called "luteal phase pregnancies," are most likely when sterilization is performed in the luteal (post-ovulatory) phase of a woman's menstrual cycle after a fertilized ovum already has implanted in the uterus. Carefully questioning all clients about the timing of their last menses and coitus and about their use of contraception can reduce the rate of such pregnancies. Timing sterilization with the preovulatory phase of the menstrual cycle would also help but is not always possible. The small risk that a woman has just become pregnant—0.12 per 100 procedures in one study (58)— must be weighed against the chances that she will become pregnant if she must wait for sterilization. Routinely performing a dilation and curettage or vacuum aspiration at the time of sterilization to be sure that the woman is not pregnant (210, 298, 316) is not recommended. It increases the risk of infection as well as the time and cost of the operation (207). Moreover, some fertilized ova may be in the fallopian tubes and would not be affected by evacuating the uterus (207, 210).

Surgical errors also cause some pregnancies—from 30 to 50 percent of later pregnancies in most studies (79, 112, 152, 180, 240, 245, 430, 527, 535). Most often, the round ligament or ovarian suspensory ligament is mistaken for the fallopian tube (329, 591) (see Figure 3). If the doctor first identifies the fimbria, errors are less likely. Other possible mistakes include applying a clip or ring to the wrong part of the tube, not locking a clip properly, and, with electrocoagulation, failing to coagulate the inner layer of the tube (25, 103, 139, 180). Surgical mistakes are most frequent when a doctor is learning sterilization techniques (114, 240, 600). One study found that women who were among the first 100 sterilization cases in a center were three times as likely to become pregnant as women sterilized later (114).

Figure 3. Anterior View of the Right Side of the Female Reproductive Tract



Technical Failures

Inability to complete the planned sterilization procedure—called technical failure—occurs in 2 percent or less of all sterilizations by minilaparotomy or laparoscopy. Usually the doctor can complete the sterilization by switching to another approach to the tubes or to another occlusion technique. Sterilizations cannot be completed by any method in well under one percent of all procedures (342, 375).

Technical failures have various causes. In minilaparotomy, characteristics of the woman—such as obesity, which makes it more difficult to locate the tubes, or adhesions, which make it more difficult to lift the tubes through the incision—may make a larger incision necessary (376). In laparoscopy, equipment malfunctions, such as fogging of a laparoscope lens or jamming of clip or ring applicators, may make another approach necessary (116). With both approaches, surgical complications, particularly tears or lacerations of the tubes, may prevent completion of the procedure (116).

Rates of technical failure in minilaparotomy and laparoscopy are similar, ranging from none to 3.7 percent in various series (32, 39, 58, 71, 114, 115, 116, 122, 139, 245, 342, 376). When a minilaparotomy cannot be completed, the doctor can widen the incision by a few centimeters and perform a laparotomy. The woman may need additional anesthesia, and the risk of complications increases. With laparoscopy, the doctor can often switch to another occlusion technique—for example, from rings to electrocoagulation—and complete the sterilization. If equipment for another occlusion technique is not available, however, a minilaparotomy or laparotomy must be performed. This requires a second incision, a second set of sterile instruments, and longer operating time (106, 342).

Other factors account for some pregnancies. Equipment failures occurred with early versions of the spring-loaded and Filshie clips (180, 245). Occasionally, clips and rings break during insertion or, even when properly applied, do not block the tube (192, 483, 508). Clips and rings can slip off the tube, especially if it is unusually thick (604). Spontaneous recanalization—rejoining of the tubes—also occurs. J.F. Hulka and colleagues reported one recanalization among 25 pregnancies in 1,079 sterilizations with the spring-loaded clips (245). In another study of 47 sterilization failures, 12 were caused by recanalization of the tubes. Nine of these followed fimbriectomy (508). The formation of fistulas (abnormal openings in the tubal wall) also leads to both intrauterine and ectopic pregnancies.

Ectopic Pregnancy

Ectopic pregnancy, the implantation of a fertilized ovum outside the uterine cavity, is an infrequent but life-threatening complication of tubal sterilization. In recent large studies the incidence of ectopic pregnancy within two years after sterilization ranged from 0.02 to 0.31 per 100 sterilized women. In most studies the rate is 0.15 or lower (58, 101, 114, 115, 139, 240, 376, 550).

While the overall incidence of ectopic pregnancy is low because female sterilization is highly effective, a substantial percentage of pregnancies in sterilized women is ectopic. The percentage ranges from 4 to 64 percent in various studies (58, 114, 115, 139, 240, 332, 528, 550) compared with 0.8 percent among women not sterilized (76, 223). Ectopic pregnancies can occur at any time after sterilization—from two months to eight years, according to several studies (50, 284, 408, 521). The rate of ectopic pregnancies does not change with time since sterilization, whereas the rate of intrauterine pregnancies decreases (113, 316). Whether they are sterilized or not, women who have had pelvic or abdominal surgery or pelvic infections are more likely to experience ectopic pregnancy (111, 113, 189, 475, 528, 566).

What causes ectopic pregnancy after sterilization? A widely accepted theory is that the fallopian tube opens partially, either because occlusion was incomplete or because the two ends of the tube reconnected after surgery. This opening is wide enough for sperm to pass through but not wide enough for the fertilized ovum (69, 92, 219, 387, 408). Another possibility is that fistulas form through the tubal wall (160, 329, 345, 346, 353, 354, 492, 521). Sperm may pass through these openings into the peritoneal cavity and fertilize the ovum, which then implants in the ovarian end of the fallopian tube (353, 521). Tubal fistulas may occur more often when ligation or electrocoagulation is performed on the inner third of the tube (the isthmus), within 4 cm of the uterine cornua (103, 345, 346).

It is not clear whether any one technique of tubal occlusion is more likely to lead to ectopic pregnancies than another (151). On one hand, a large South Korean study and a number of smaller studies reported higher ectopic pregnancy rates after electrocoagulation than after other techniques (112, 113, 114, 346, 427, 528, 567). On the other hand, a study reporting life-table rates found no significant differences among 23,600 sterilizations by electrocoagulation, Pomeroy ligation, or ring (113).

Ectopic pregnancy is a life-threatening condition. Women must be aware of the need for immediate medical attention if they experience any of the symptoms of ectopic pregnancy—amenorrhea, vaginal bleeding, or abdominal pain. Also, doctors must consider the possibility of ectopic pregnancy in sterilized women with any of these symptoms (69, 151).

ANESTHESIA

Local anesthesia and mild sedation are now recommended for sterilization with minilaparotomy and laparoscopy. Local anesthesia makes female sterilization possible on an outpatient basis and is much safer, cheaper, and less likely to delay recovery from surgery than general, spinal, or epidural anesthesia. Local anesthesia carries some risks, however, and women must be monitored carefully during and after sterilization. Family planning programs should promote the use of local anesthesia and establish standard regimens. Training programs may be necessary in some areas to ensure that doctors are using local anesthesia regimens correctly and safely.

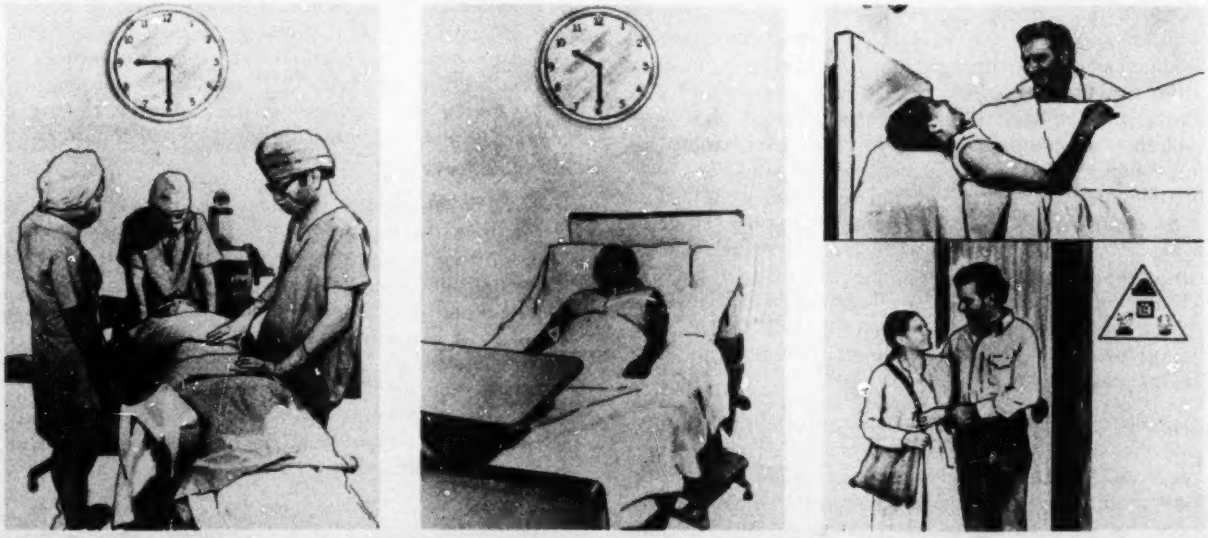
Complications associated with anesthesia, like other sterilization complications (see p. C-139–144), are rare, ranging in frequency from 0.04 to 0.75 per 100 procedures (32, 139, 252, 597). Nevertheless, anesthesia is by far the most common cause of serious complications and deaths attributed to female sterilization. In the US, for example, general anesthesia was responsible for 11 of 29 sterilization-attributed deaths in the period 1977 to 1981 (419). Using a local anesthetic and sedatives in correct doses can virtually eliminate anesthesia complications and related deaths.

A large study in India found that local anesthesia was 10 times safer than general anesthesia (252). Among 32,000 women sterilized in 13 teaching hospitals, the rates of anesthesia-related complications per 100 procedures were:

General anesthesia	0.2
Spinal anesthesia	0.1
Local anesthesia	0.02

In a US study women sterilized with local anesthesia were one-fifth as likely to experience a major complication—that is, one requiring hospitalization or laparotomy—as women sterilized with general anesthesia (149). Minor complaints—headaches and nausea and vomiting—also are much less common with local than with general anesthesia (252, 266).

Not only is local anesthesia safer, it also is less expensive and more convenient. Administering general, spinal, or epidural anesthesia requires special personnel and monitoring equipment. Administering spinal or epidural anesthesia is time-consuming—20 to 30 minutes even for an experienced anesthetist (184). Recovery from general or spinal anesthesia takes an average of about four hours (511). Throughout this period the woman must be carefully watched. In contrast, local anesthesia can be administered and monitored by the doctor performing the procedure. The effects of the drugs, if given in proper doses, wear off quickly, and the woman spends less time in the health care facility.



A booklet for nonliterates prepared by PIATA of Mexico shows that female sterilization is quick, and a woman can go home in a few hours.

Local Anesthesia Regimens

Local anesthesia regimens usually consist of three types of drugs: (1) systemic agents that sedate the woman and block pain, (2) local analgesics that relieve pain at the incision site, and (3) systemic drugs that prevent nausea or disturbances of heart function. No single regimen is universally appropriate (195, 587). The choice of regimens will vary according to the skill and availability of health care personnel, the safety and satisfaction of clients, the preferences of doctors, and the availability and cost of drugs (587). Various regimens have been used safely.

The most widely used regimen consists of the sedative diazepam (trade-named Valium), the narcotic meperidine (pethidine, or Demerol), and the local anesthetic lidocaine (lignocaine, or Xylocaine) (295). Atropine is sometimes given to prevent slowing of the heartbeat (bradycardia), and promethazine (Phenergan), to prevent nausea. The Expert Committee convened in 1983 by the World Federation of Health Agencies for the Advancement of Voluntary Surgical Contraception recommends the following regimen, which has been used safely for minilaparotomy and laparoscopy:

- **diazepam** 10 mg by mouth 30 to 60 minutes before surgery; 5 mg for women weighing under 35 kg (75 lb);
- **atropine** 0.6 mg injected just before surgery; 0.4 mg for women under 35 kg;
- **meperidine** 50 mg injected just before surgery; 25 mg for women under 35 kg;
- **promethazine** 25 mg injected just before surgery;
- **lidocaine**, one percent solution, 15 to 20 cc injected into the abdominal wall and applied to the fallopian tubes and uterus (587).

Atropine, meperidine, and promethazine can be given either intramuscularly or intravenously. When administered intravenously, however, the drugs take effect very rapidly. In rare instances a woman's breathing may slow markedly. Therefore these drugs should not be given intravenously unless resuscitation equipment is available (182). Naloxone (Narcan), a drug that counteracts the effects of anesthesia, should always be available at the time of surgery (208, 209, 443).

Health professionals must take care not to exceed the recommended doses. Doses of sedatives and narcotics that are too large, too frequent, or too rapidly administered can stop breathing and cause death. Overdoses of lidocaine have caused convulsions, coma, and cardiovascular collapse (142, 181). Particular caution is required in double-puncture laparoscopy, when the doctor must inject the lidocaine at two incision sites. The maximum safe total dose is 4.5 mg per kg of body weight. With a one percent solution of lidocaine, this is 0.5 cc per kg (181, 587). In addition, even at recommended doses local anesthetics containing para-aminobenzoic acid, such as chloroprocaine, may cause severe allergic reactions (142, 181). If promethazine is accidentally injected into an artery, blood flow can be blocked. Promethazine also can lower blood pressure (183).

Women should be regularly monitored before, during, and after surgery. The woman's pulse, blood pressure, and respiration must be checked every 15 minutes from the time preoperative medication is administered. During surgery vital signs should be checked every 5 minutes and, after surgery, every 15 minutes for at least one hour or longer, until they return to normal (182, 587).

Under local anesthesia women remain conscious. Thus they must be counseled thoroughly before the procedure so that they will not be frightened and will not disrupt the procedure. Also, for many women local anesthesia does not block pain completely. As many as one-half experience mild to moderate pain during surgery, particularly when the doctor moves the pelvic organs (509). The doctor has to work as gently as possible. Medical personnel, including doctors, should talk with patients during sur-

Contraindications to Female Sterilization

There are few absolute contraindications to minilaparotomy or laparoscopy. Women with current peritoneal infections should not undergo either procedure because surgery can spread the infection. In addition, peritoneal infection can cause bowel distention, increasing the risk of bowel perforation during surgery (74, 241). Women with infections should be treated and given a temporary method of contraception (587). Once the infection is cured, surgery can be performed. Women with severe chronic heart or lung disease should not undergo laparoscopy (74, 241, 316, 328, 433, 591). Both the intraabdominal pressure from insufflation and the Trendelenburg position used in laparoscopy (the woman is tilted 30 to 40 degrees from horizontal, head down) can interfere with blood flow to the heart, causing fatal arrhythmias (irregularities in heartbeat) and congestive heart failure (316, 591).

Relative contraindications to both procedures include obesity and pelvic adhesions. Inserting a trocar and insufflation needle through the abdominal wall and making a small abdominal incision are more difficult in obese women. Manipulating the uterus and identifying the tubes also are more difficult in obese women. Nonetheless, with extra care the procedures can be performed successfully. Women who have had pelvic surgery or pelvic infections are likely to have adhesions that may partially or completely immobilize the uterus and tubes. A minilaparotomy is difficult or impossible under these circumstances, and the larger laparotomy incision may be necessary (591). Adhesions also interfere with insufflation of the abdomen during laparoscopy and increase the risk of bowel perforation (316, 591).

Some health conditions can increase the risk of complications during surgery. These include: heart disease, irregular pulse, hypertension, pelvic masses, uncontrolled diabetes, bleeding disorders, severe nutritional deficiencies, severe anemia, and umbilical or hiatal hernia (316, 328, 587). The doctor should evaluate each woman before surgery and balance the risks of sterilization against the risk of pregnancy. If the health facility is in a remote area and is not well-equipped to handle emergencies, the doctor should refer these women to a larger facility (587).

gery, reassuring them if need be. In addition, doctors must wait three to five minutes for the local anesthetic to take effect before making any incision (181, 183, 295, 322, 587).

Local anesthesia is clearly preferable in the great majority of female sterilization procedures. In some circumstances, however, general anesthesia may be necessary. Women who are extremely frightened of surgery may not want to be conscious during the procedure. Women with severe pelvic adhesions and obese women also may need general anesthesia since these conditions increase operating time and require additional manipulation of pelvic organs, which can be very painful (181, 514). General anesthesia also may be advisable when a doctor is first learning sterilization procedures.

Other Methods of Local Anesthesia

In some areas other methods of local anesthesia are being used with promising results. A method called "conscious sedation" has been developed by Sylvan Shane, formerly of the Johns Hopkins University. Conscious sedation combines a local anesthetic with several drugs that cause amnesia. The following regimen is used: alphaprodine hydrochloride (Nisentil) 24 mg; hydroxyzine hydrochloride (Atarax) 50 mg; and methohexital (Brevital) one percent solution 20 mg. The alphaprodine and hydroxyzine are administered intravenously. One-and-a-half to two minutes later the methohexital is injected with a separate syringe (499). Women are conscious during the procedure and experience only mild pain. Once the procedure is over, they do not remember the pain. The effects of the drugs wear off rapidly, and some women can walk unassisted from the operating room to the recovery room (272, 498, 572). The Johns Hopkins Program for International Education in Gynecology and Obstetrics (JHPIEGO) has trained physicians who are now using this technique in Morocco and Tunisia. JHPIEGO plans to conduct training seminars in conscious sedation for doctors in Cameroon and Nigeria (552).

In China acupuncture and a local anesthetic are routinely used during female sterilizations (417). Acupuncture is a technique of inserting needles into the skin at specific places to relieve pain from surgery or disease. Doctors performing minilaparotomy in Sri Lanka also have used acupuncture along with lidocaine. Acupuncture needles were administered 30 minutes before surgery, and lidocaine was injected into the abdomen just before the operation. Among 78 women sterilized with this regimen, 62 percent required no additional anesthesia. These women were able to leave the operating table and walk into the recovery room without help. They could leave the clinic one hour after surgery. The rest of the women required diazepam and meperidine before the doctor could complete the sterilization, but only half of the usual dose was needed (154).

Training Health Workers

Training programs are needed to encourage practicing doctors to use local anesthesia and to ensure that proper regimens are followed. Despite the advantages of local anesthesia, many doctors do not use it. In the US, for example, most doctors working in hospitals perform female sterilizations with general anesthesia. Trained anesthesiologists are available, and the doctors prefer operating on women who are unconscious. Most gynecologists first learned sterilization techniques using general anesthesia, and they continue to operate in the same way (412). A different problem arose in Bangladesh, where some doctors were using such high doses of systemic sedatives with local anesthetics that women were completely unconscious (183, 208).

In a Kenyan clinic a nurse checks women who have just been sterilized. Use of local anesthesia enables these women to leave the clinic safely about four hours after surgery. (Pathfinder Fund)

Training should cover all aspects of using anesthesia:

- pharmacology of drugs used for anesthesia and their antagonists,
- clinical use of drugs,
- side effects of anesthetics,
- monitoring of anesthetized women,
- resuscitation, including use of air bag and mask to aid breathing, techniques for maintaining an open airway, external heart massage, and use of anesthesia antagonists (182).

Some doctors as well as other members of the surgical team also may need to develop their communication skills so that they can talk comfortably with the patient during sterilization.

National family planning programs should ensure that safe anesthesia techniques are practiced. If drugs and facilities are available, these programs should promote standard anesthesia regimens to be used by all doctors (587). If possible, programs should monitor all facilities. A health worker specially trained in anesthesiology should visit facilities to observe anesthesia techniques and patient monitoring and to inspect supplies and resuscitation equipment (182).

COMPLICATIONS

Female sterilization is a safe procedure, and few women experience complications. Major complications occur in less than 2 percent of all procedures (149). Most problems are minor, such as wound infections or slight bleeding (see Table 4), and they are resolved easily and rapidly.

Two indications of the severity of complications are prolonged hospitalization and the need for laparotomy to resolve complications. By both measures, major complications after sterilization are rare. Among 18,000 women in

Table 4. Surgical and Postoperative Complications Within Two Weeks of Voluntary Female Sterilization, Selected Studies, 1976-1985

Author & Date (Ref. No.)	Place	Occlusion Technique	No. of Women	Major Complications per 100 Women[a]	Bleeding/ Hemorrhage	Fever/Infection	Incision Problem[b]	Tube/ Mesosalpinx	Uterus	Other Organs[c]
					Event Rates (per 100 Women)					
								Injuries to:		
MINILAPAROTOMY										
Bangladesh Fertility Research Program 1979 (39)	Bangladesh	Ligation 25% Ring 75% Other <1%	2,597	0.3[d]	0.0	0.1	0.2	0.0	0	0.1
Domenzain et al. 1982 (159)	Mexico	Pomeroy 97% Ring 3%	800	0[e]	0.6[f]	2.1	6.5	0	0.3	0
Mumford et al. 1980 (376)	23 countries	Pomeroy	4,965	NA	0.0[f]	NA	0.0	0.1	0.3	0.4
		Ring	2,969	NA	0	NA	0.0	1.0	0.1	0.1
			7,934	NA	0.0[f]	NA	0.0	0.4	0.2	0.3
World Health Organization 1982 (597)	10 countries	Modified Pomeroy	791	1.8[e]	4.2[f]	2.3	6.2	NA	0.5	0.6
LAPAROTOMY										
Bhatt et al. 1978 (55)	India	Modified Pomeroy	1,960	NA	NA	0.5[g]	2.6[g]	0	0	0.2
Bhatt et al. 1983 (53), **Indian Council of Medical Research 1982** (252)	India	Ligation	27,695	NA	0.2[f]	0.3	7.2	0.0	0.0	0.0
LAPAROSCOPY										
Baggish et al. 1979 (32)	US	Electrocoagulation	4,500	NA	6.3	0.5	NA	0	0.1	0.3
		Ring	846	NA	7.3	0.2	NA	0	0	0.4
			5,346	0.6[h]	6.5	0.5	NA	0	0.1	0.3
Bhathena et al. 1985 (49)	India	Ring 82% Electrocoagulation 18% Prototype spring clip 1%	9,066	<0.1[e]	0.3[f]	0.6	1.7	1.0	1.2	0.1
Bhatt 1980 (51)	India	Ring	5,287	NA	0.2	NA	NA	0.3	1.0	0
Bhatt et al. 1983 (53), **Indian Council of Medical Research 1982** (252)	India	Electrocoagulation 87% Ring 13%	2,290	NA	0.0[f]	0.1	29.7	0.1	0.7	0.3
Bhiwandiwala et al. 1982 (59)	27 countries	Electrocoagulation	12,643	NA	0.7	NA	NA	0.8	0.2	0.2
		Ring	8,770[i]	NA	0.5	NA	NA	1.1	0.3	0.1
		Prototype spring clip	2,324	NA	0.2	NA	NA	0.3	0.2	0.1
		Rocket clip	702	NA	0.4	NA	NA	0.7	1.1	0.6
			24,439	NA	0.6	NA	NA	0.8	0.2	0.4
Brenner et al. 1976 (71)	US	Electrocoagulation	976	NA	0.6	0.7	1.0	0	0.1	0.2
		Prototype spring clip	976	NA	0.9[f]	0.8	0.8	0	0.1	0.1
		Ring	312	NA	1.6	1.9	1.3	0	0	0
			2,264	NA	0.9	0.9	1.0	0	0.1	0
Chamberlain & Brown 1978 (93)	UK	Electrocoagulation 80% Ring 14% Clip 4% Other 2%	29,661	3.1[e]	0.4[j]	NA	NA	1.3		
Cole et al. 1979 (122)	6 Latin American countries	Electrocoagulation	5,877	NA	4.7[g]	3.7[g]	2.1[g]	1.6	0.1	0.5
		Prototype spring clip	391	NA	3.5[g]	1.1	6.9	0.8	0	0
		Ring	1,918	NA	4.1[g]	3.0[g]	1.7[g]	0.9	0.3	0.1
			8,186	0.2[d]	4.5[k]	3.4[k]	2.6[k]	1.4[k]	0.1[k]	0.4[k]
Cunanan et al. 1980 (139)	US	Electrocoagulation	4,992	0.5[h]	0.5	0.1	NA	0	0.2	0.1

Table 4 (Continued)

Author & Date (Ref. No.)	Place	Occlusion Technique	No. of Women	Major Complications per 100 Women[a]	Event Rates (per 100 Women)			Injuries to:		
					Bleeding/ Hemorrhage	Fever/Infection	Incision Problem[b]	Tube/ Mesosalpinx	Uterus	Other Organs[c]
Hulka et al. 1976 (245)	El Salvador, UK, India, Singapore, Thailand, US	Prototype spring clip	1,079	0.1[h]	0.1[f]	NA	NA	0.4	0	0
Lee & Hagen 1984 (310)	US	Electrocoagulation	1,092[i]	NA	1.2[f]	0.2	NA	0	0	0.1
Mumford & Bhiwandiwala 1981 (375)	23 countries	Ring	6,976	0.2[h]	0.2[l,m]	NA	1.8	0.9	0.3	0.1
Poliakoff et al. 1978 (430)	US	Ring	1,976	0.1[h]	0.1[f]	0.1	0.1	3.7	0.1	0.6
Whang 1980 (567)	South Korea	Unipolar electrocoagulation	261,467	NA	0.0	NA	NA	NA	NA	0.0
		Bipolar electrocoagulation	36,683	NA	0.0	NA	NA	NA	NA	0.0
		Ring	92,099	NA	0.0	NA	NA	NA	NA	0
			390,249	0.0[h]	0.0	NA	NA	NA	NA	0.0
World Health Organization 1982 (597)	10 countries	Electrocoagulation	819	0.9[e]	2.0	2.8	2.4	NA	0	0.4

0.0 = <0.05
0 = no cases
NA = not available

[a] Complications reported in this column also are reported in the columns to the right.

[b] Includes all incision problems except bleeding, including extensive incision, herniation, infection or abscess, local phlebitis, discharge, wound gaping, and unspecified

[c] Includes bowel injuries

[d] Women requiring additional hospitalization

[e] Reported as serious or major by investigators

[f] Includes hematoma

[g] Women are counted twice if complication occurred both during surgery and postoperatively

[h] Women requiring laparotomy

[i] Includes 1,004 who had open laparoscopy

[j] Only mesosalpingeal bleeding rate reported

[k] Calculated by Population Information Program

[l] 66.1% had open laparoscopy

[m] Includes hemorrhagic shock

24 countries, only 64 women, or 0.3 percent, had complications requiring hospitalization of three or more nights after surgery (117). The need for laparotomy to resolve complications also is rare. Rates range from 0.02 to 1.2 percent in large studies (32, 93, 117, 139, 149, 245, 430, 600). Delayed complications that require readmission to the hospital occur after less than one percent of procedures (109, 149).

Minilaparotomy and Laparoscopy

Minilaparotomy and laparoscopy seem to have similar complication rates, although comparisons between studies are difficult because of different definitions, lengths of follow-up, and levels of surgical expertise. Small randomized studies comparing the two approaches generally report that minilaparotomy has a somewhat higher rate of minor complications as well as a longer average operating time, a slightly longer postoperative convalescence, and more postoperative pain (314, 357, 373, 597). In a WHO comparative trial, for example, about 12 percent of the women sterilized by minilaparotomy experienced minor complications compared with 7 percent of the women sterilized by laparoscopy (597). In contrast, two large, nonrandomized studies of data from Family Health International (FHI) cooperating centers found that minilaparotomy with Pomeroy ligation had half as many complications as laparoscopy with electrocoagulation or rings (375, 376). Under difficult operating conditions—particularly in rural areas with doctors who have received little training in

A field worker in Bangladesh visits a recently sterilized woman to make sure that no medical or other problems have arisen. Severe complications of female sterilization are rare. (Pathfinder Fund)

In a Philippine pamphlet a woman learns from her friend that laparoscopic sterilization takes only 15 to 30 minutes and requires only a few hours' stay in the hospital. Her friend describes the brief recovery period and says that the procedure is free to those who cannot pay, while a donation is requested of others. The back page lists hospitals where laparoscopic sterilization is available.

laparoscopy—very high complication rates have been reported for laparoscopy (53, 97).

Most minilaparotomy complications are not serious (163, 341, 558). They include minor wound infections, slight blood loss, and perforations of the uterus by the instrument used to move the uterus. Because the minilaparotomy incision is made directly above the bladder, doctors sometimes perforate the bladder. This complication is usually recognized immediately and can be easily repaired during surgery (163, 558).

Laparoscopy can cause certain complications that do not occur with minilaparotomy. Insufflation of the abdomen can lead to gas embolism, subcutaneous emphysema (distention of tissues by gas or air), or cardiac arrest. These events are rare, occurring in less than one-tenth of one percent of procedures (139, 328). Lacerations of blood vessels or abdominal organs can occur when the insufflation needle or the trocar is inserted blindly into the abdomen. These events also are rare and can be almost eliminated if the doctor inserts instruments carefully (132).

Open laparoscopy was developed to avoid these complications, but to date studies on open laparoscopy have been too small to determine whether it is safer than standard laparoscopy. In open laparoscopy the doctor inserts the laparoscope under direct vision. Theoretically, the risk of blood vessel and bowel lacerations should be eliminated. An FHI study comparing open and closed laparoscopy in about 1,400 women found similar rates of complications, surgical difficulties, and technical failures with the two approaches (62), as did a study in Pakistan involving 620 women (338).

Among the different mechanical and electrical techniques of tubal occlusion used with laparoscopy, complication rates are similar, according to most reports. In four large studies complication rates ranged from one to 3 percent for all techniques (58, 71, 122, 342). A UK survey of over 29,000 laparoscopies reported a complication rate for the ring of 4.3 percent, slightly higher than the rates of 3.1 percent for electrocoagulation and 3.0 percent for clips (93).

Transection (severing) or tearing of the tubes occurs in one to 5 percent of ring sterilizations (32, 43, 71, 90, 144, 226, 287, 349, 356, 390, 409, 430, 606). These injuries are more likely when: (1) the tubes are drawn into the applicator too quickly; (2) tubes are thickened by pregnancy or infection; (3) the ring is placed on the tube close to the uterus; or (4) the tube is immobilized by adhesions (90, 226, 356, 604, 606). Most tubal tears can be managed by applying a second ring to the tube to stop bleeding or by cauterizing the torn end (606).

Unipolar coagulation carries a small risk of burns to the abdominal organs, particularly the small bowel. These burns are reported in only 0.05 to 0.3 percent of procedures (32, 93, 97, 139, 316, 328, 340, 532). A recent study suggests, however, that some of these reported burns may actually have been traumatic injuries that occurred when the trocar was inserted into the abdomen (317). Bowel burns and lacerations are particularly dangerous because up to two-thirds are not recognized at the time of surgery (139, 361, 532). Pain and other symptoms may not occur for several days or longer (328, 340, 422). If untreated, bowel burns sometimes cause serious bleeding or peritoneal infection. Laparotomy and bowel resection are usually necessary (316).

Burns occur during unipolar laparoscopy in several ways. The doctor may accidentally touch the bowel with the coagulation forceps. Also, it is possible that sparks jump from the forceps to other organs, although this has not been proved (147). Skin burns can occur if contact between the ground plate and the woman is inadequate (328, 422). These burns can be eliminated by using a unipolar generator with an output of less than 100 watts and 600 peak volts and using metal trocar sleeves (157, 505, 506). Bipolar electrocoagulation, which does not make the woman part of the electric circuit, is much less likely to cause burns (139, 242, 316, 422, 459).

Pain

Some discomfort is common after surgery. Women undergoing laparoscopy may feel chest and shoulder pain for one to two days because of insufflation of the abdomen and trapped gas afterwards. Lower abdominal pain is also common. The minilaparotomy incision causes moderate discomfort in up to 40 percent of women (18, 55, 597). Standard pain relievers such as aspirin usually ease the discomfort.

Among tubal occlusion techniques, the ring appears to cause more postoperative pain than the others. In FHI's randomized trials, 29 to 51 percent of the women sterilized by rings reported moderate to severe pain after surgery, compared with 14 to 18 percent of women sterilized by electrocoagulation and 24 to 29 percent sterilized by clips (104). Short-term pain may occur with rings because the ring shuts off the blood supply to a loop of tube but nerve endings in the tube do not die for several days (226, 410, 604). Applying lidocaine to the tubes during ring sterilization reduces pain temporarily (288, 410). If the woman is given the prostaglandin inhibitor indomethacin before the procedure, postoperative pain may be less (73).

Risk Factors

The risk of complications depends not only on the type of procedure, but also on the experience of the doctor and the characteristics of the woman. Adequate training, surgical skill, and continuous practice are important, particularly in laparoscopy (53, 361, 469, 517). For example, the

1975 survey of the American Association of Gynecologic Laparoscopists found that the complication rate for doctors performing between one and 20 laparoscopic sterilizations per year was almost one per 100 cases. Doctors performing over 100 procedures per year reported only 0.5 complications per 100 cases (424). Certain women may be at higher risk of complications than others. In a US study of 3,500 women, those who had undergone previous abdominal or pelvic surgery were almost four times as likely to develop complications requiring laparotomy as women who had not. Other risk factors were a history of diabetes mellitus; lung disease such as asthma, bronchitis, or emphysema; and obesity (149).

Mortality

Female sterilization causes very few deaths. Most recent large surveys around the world report 3 to 19 deaths per 100,000 procedures. Three studies report higher mortality rates—over 70 per 100,000 procedures (see Table 5). Many of these deaths could have been prevented by proper use of local anesthesia and careful aseptic techniques during surgery.

Table 5. Mortality Attributed to Voluntary Female Sterilization, Selected Studies, 1975-1984

Author & Date (Ref. No.)	Place	Source of Data	Sterilization Method	Date	No. of Procedures	No. of Deaths	Deaths per 100,000 Procedures
Aubert et al. 1980 (27)	Over 150 centers in 60 developing countries	International Project/ Association for Voluntary Surgical Contraception reporting system	All methods	1973–79	255,812	19[a]	7
			Minilaparotomy		97,699	8	8
			Laparoscopy		89,006	4	5
			Colpotomy		4,729	0	0
			Culdoscopy		5,930	1	17
			Postpartum		46,894	2	4
			Other		11,554	0	0
Bangladesh 1984 (35)	Bangladesh	National reporting system	NA	1979	135,791	12	9
				1980	226,937	17	8
				1981	240,877	22	9
				1982	300,133	21	7
				1983	290,537	13	5
				1979–83	1,194,275	85	7
Chamberlain & Brown 1978 (93)	UK	Prospective survey of hospitals	Laparoscopy	1976–77	29,661	3	10
Chaturachinda 1980 (97)	34 centers in rural Thailand	Center reports and survey of doctors	Laparoscopy	6/74–12/77	5,632	4	71
Grimes et al. 1982[b] (208)	Bangladesh	National reporting system	Minilaparotomy	1/79–3/80	108,875	21	19
Grimes et al. 1982[b] (209)	Bangladesh	National reporting system	Minilaparotomy	9/80–4/81	138,745	19	14
Indian Council of Medical Research 1982 (252)	India	Prospective survey of 13 teaching hospitals	All methods	9/76–6/78	32,177	23[c]	72
			Laparotomy		27,695	21[c]	76
			Laparoscopy		2,290	1	44
			Colpotomy		2,192	1	46
Peterson et al. 1982 (418)	US	National hospital discharge survey and hospital records review	NA	1977–78	414,513[d]	15[e]	4
Phillips et al. 1978 (427)	US	Retrospective survey of 964 members of the American Association of Gynecological Laparoscopists (AAGL)	Laparoscopy	1976	77,103	3	4
Phillips et al. 1977 (426)	US	Retrospective survey of 4,354 AAGL members	Laparoscopy	1975	201,565	5	3
Phillips et al. 1975 (425)	US	Retrospective survey of 872 AAGL members	Laparoscopy	1974	66,494	5	8
Rahman 1981[b] (443)	Bangladesh	National reporting system	NA	1974–80	354,718	40	11
Rosenberg et al. 1982[b] (469)	Bangladesh	Follow-up of women sterilized in 41 centers	Minilaparotomy	1980	5,042	5	99
Ross et al. 1984 (472)	Over 150 centers in developing countries	Association for Voluntary Sterilization reporting system	All methods	1973–83	705,418	38	5
			Minilaparotomy		340,024	23	7
			Laparoscopy		281,498	14	5
			Other		99,537	1	1

NA = not available

[a] Sterilization method not reported for 4 deaths

[b] May include deaths reported in other entries of this table concerning Bangladesh

[c] Includes 11 deaths of women who had undergone cesarean sections and were already seriously ill

[d] Includes only sterilizations performed without concurrent abortion, cesarean section, or nongynecologic procedure

[e] Nine deaths attributed to sterilization from 38 verified hospital records of deaths plus an estimated six deaths among 25 unverified hospital records of deaths

The three major causes of death are anesthesia overdose, infection, and hemorrhage. In various studies the proportion of deaths related to anesthesia ranges from 20 to 80 percent. In most of these cases doses were too high or too frequent. Rarely, a woman will experience a fatal allergic reaction to the anesthetics even in appropriate doses (419).

Infection, particularly tetanus infection, accounts for 10 to 50 percent of deaths. Tetanus has been a problem in Asia after both female sterilization and, to a lesser extent, vasectomy (208, 209, 443, 522). Injuries to the bowel often lead to peritonitis, an infection of the abdominal cavity. Bowel injuries are caused mainly by electric burns or by lacerations during surgery (27, 91, 97, 419).

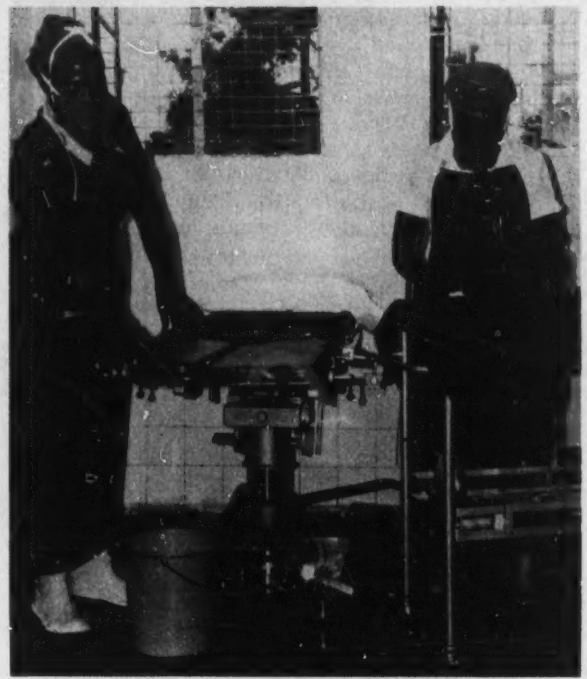
The third major cause of death, excessive bleeding, accounts for 6 to 25 percent of deaths. The most common reason for fatal hemorrhage is perforation of a major blood vessel, which can occur during laparoscopy when the insufflation needle or the trocar is inserted (419, 420). Also, tying sutures on the tubes too loosely can allow continuous slow bleeding that can be fatal (209).

How can sterilization deaths be prevented? The use of appropriate doses of local anesthesia and light sedation will prevent most anesthesia-related deaths. The importance of better anesthesia techniques has been demonstrated in Bangladesh. A new anesthesia regimen, involving greater use of local anesthesia, lower doses of narcotic agents, and better patient monitoring, was adopted in 1983 (35). Anesthesia-related deaths dropped from 2.3 per 100,000 procedures in 1982 to 0.7 per 100,000 in 1983 (35).

Scrupulous use of sterile technique can prevent many deaths from infection. Proper equipment for sterilizing instruments and sterile drapes and towels for each patient can reduce the spread of infection. Except for laparoscopes (see box, p. C-154), instruments and surgical linens should be sterilized in an autoclave. The Sterilization Surveillance Team in Bangladesh suggests refresher courses in aseptic techniques for all practicing doctors and recommends more emphasis in medical school on asepsis (35). Tetanus immunizations should be given whenever possible (206, 522). Three inoculations are necessary for complete protection, however, and tetanus toxoid is expensive and requires refrigeration. Thus tetanus immunization is not always possible.

Mortality rates after sterilization are far lower than after childbirth. Maternal mortality in 1977 is estimated to have ranged from 11 deaths per 100,000 live births in North America to over 500 in Asia. The average in developing countries is estimated at about 400 deaths per 100,000 (462). Death rates may be considerably higher in rural areas (see **Population Reports**, *Healthier Mothers and Children Through Family Planning*, J-27, May-June 1984). By contrast, death rates for female sterilization range from 2.5 to 99 per 100,000 procedures. Moreover, sterilization presents a one-time risk, whereas women otherwise may face the risks of childbirth repeatedly.

Particularly in countries with high maternal mortality rates, female sterilization offers a significant health benefit. David Grimes and colleagues compared the mortality rate from female sterilization in Bangladesh in 1979 and 1980—19 deaths per 100,000 procedures—with the maternal mortality rate—570 deaths per 100,000 live births. They estimated that for every 100,000 female sterilization procedures, more than 1,000 maternal deaths were prevented (208).



Before a female sterilization procedure, nurses in a Kenyan clinic make sure that equipment is clean and that instruments are sterile. Strict observance of sterile operating technique reduces the chances of serious infection after surgery. (Pathfinder Fund)

POSTPARTUM STERILIZATION

Postpartum sterilization is safe and convenient. While the physiological changes that occur with pregnancy may lead to slightly higher surgical complication and failure rates, risks are still very slight. For postpartum sterilization minilaparotomy with tubal ligation is safest, and laparoscopy is not recommended.

Postpartum sterilization is common. For example, in the US in 1980 almost half of all female sterilizations were postpartum (368). In four Latin American countries the World Fertility Survey found that 49 to 71 percent of all sterilized women underwent postpartum procedures (344).

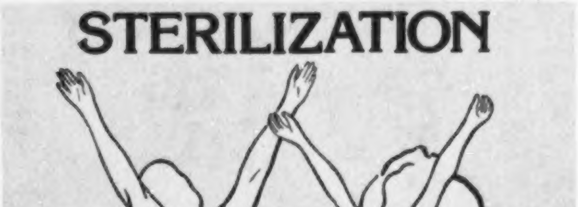
Postpartum sterilization offers a number of advantages. For many women childbirth is their major contact with health services and thus their best opportunity to obtain sterilization. Furthermore, after delivery many women are highly motivated to avoid having more children. The woman faces only one hospitalization and, when sterilization is performed shortly after delivery, only one exposure to anesthesia. Also, costs are lower (101, 285, 461, 593, 591).

The disadvantages are that physiologic changes in the pelvis during pregnancy make the sterilization procedure slightly more difficult, increasing somewhat the risk of complications, errors, technical failures (inability to complete the initial procedure), and subsequent pregnancies. After childbirth the uterus and tubes are enlarged. The uterus can block the doctor's view of the tubes. The swelling of the tubes can interfere with the application of clips or rings. Also, there is more blood flow to the pelvis during pregnancy, and occluding the tubes can lead to excessive bleeding. During childbirth bacteria can enter the pelvis, increasing the risk of infection (32, 115, 135, 205, 282, 285, 294, 316, 461, 527).

Complications

Minilaparotomy is the safest sterilization method in the postpartum period—nearly as safe as interval sterilization (sterilization performed at least six weeks after childbirth or abortion). Among 2,000 women sterilized by minilaparotomy in Indian sterilization camps in the 1970s, the surgical complication rate for postpartum sterilization was 2.4 percent compared with 1.6 percent for interval sterilization. Rates of early postoperative complications also were similar—7.7 and 6.1 percent (55). A smaller study in Bangladesh also reported a low rate of surgical complications—1.3 percent for postpartum and postabortion sterilizations and 0.4 percent for interval sterilizations (39).

In contrast, laparoscopy does not appear to be as safe during the postpartum period as at other times. In an FHI medical records review involving almost 22,000 women sterilized by laparoscopy, the rate of hospital readmission for complications was 0.5 per 100 for postpartum sterilization and 0.6 per 100 for postabortion sterilization compared with 0.1 per 100 for interval sterilization (109, 122). In six Latin American countries surgical complications with laparoscopy occurred in 4.9 percent of women sterilized postpartum compared with 2.5 percent after interval sterilization—a statistically significant difference (122). In an Indian study of laparoscopic sterilization, injuries to the uterus were twice as common postpartum as in postabortion or in interval sterilizations (53). Some smaller studies have found no differences, however (55, 138, 234, 273, 294, 375).


STERILIZATION
Means
FREEDOM
FROM PREGNANCY
for people
who have all the
children they want
FAMILY PLANNING ASSOCIATION OF TRINIDAD & TOBAGO
141 Henry Street, Port of Spain
6A Lord Street, San Fernando

The very high effectiveness of voluntary sterilization offers freedom from fear of unwanted pregnancies, as this poster from the Family Planning Association of Trinidad and Tobago points out.

Effectiveness

Postpartum or postabortion sterilization appears to be somewhat less effective than interval sterilization (115, 240, 375), although some studies report no difference (58, 114, 139, 212, 527, 591) (see Table 3). One of the largest comparative studies involved 9,400 women in 33 centers worldwide. Among women sterilized with electrocoagulation or rings, the rate of pregnancies per 100 women was 0.4 after interval sterilizations, 0.8 after postabortion sterilizations, and 1.4 after postpartum sterilizations (115).

Counseling

While postpartum sterilization is convenient, it is not advisable for all women. Childbirth and abortion are stressful. Some women may later regret decisions if they are made at these times (see p. C-159). Whenever possible, women should receive counseling during pregnancy and make their decisions before delivery. Doctors and other health workers should routinely discuss postpartum contraception during prenatal visits (4, 587, 591). Women who have not spoken to health workers before delivery should receive counseling before undergoing sterilization. In all circumstances women must not be made to feel pressured into making quick decisions. Health workers must also reassure clients that, if they do not choose sterilization, other health services will not be withheld (461).

LONG-TERM SIDE EFFECTS

Voluntary female sterilization does not cause adverse long-term side effects, according to most recent research. After sterilization, women do not seem to face any greater risk of gynecological problems or to require more pelvic surgery. Satisfaction with the operation is high, and few women experience psychological problems later. Studies observing women's menstrual patterns for up to two years after the procedure find that, if there is any consistent change, it is on average a positive one—an increase in menstrual regularity. Women with irregular cycles before sterilization, however, are likely to continue to have irregular cycles after sterilization. Also, women who used oral contraceptives (OCs) or IUDs before sterilization will see menstrual changes because they discontinued those methods.

For at least two decades there has been debate over the long-term effects, if any, of female sterilization. Some researchers have suggested that a wide range of symptoms, such as abnormal menstrual bleeding, abdominal and pelvic pain, various gynecological complaints, and even weight gain and benign breast disease, may develop in about 15 percent of women after sterilization (163, 239, 331, 337, 374, 382, 385, 434, 457, 479, 551, 574). Some have called this "post tubal ligation syndrome." Others consider it a "medical myth" (131, 421, 477).

To explain how sterilization could theoretically cause later problems, some clinicians hypothesize that damage to the fallopian tubes disturbs blood supply to the ovaries, causing changes in hormone production or diffusion that in turn cause these problems (12, 94, 161, 239, 360, 441, 442). Evidence is contradictory, however. Some studies have found significantly lower levels of serum progesterone (161, 218, 335, 441, 442), serum estradiol, and luteinizing hormone in sterilized women than in control groups of unsterilized women (12, 89). Others have not (12, 134, 335, 351, 442). None of these studies examined hormone levels in the same women before and after sterilization (421). Most did not involve control groups matched for age or parity—factors related to ovarian function (239).

Menstrual Patterns

Studies in over 25 developed and developing countries, involving almost 17,000 women, report that 50 to 90 percent experience no change in any aspect of menstruation in the first two years after surgery. Among the women who do see differences after surgery, about half observe increased menstrual problems, such as irregular cycles or more bleeding, and about half observe improvements (59, 60, 61, 94, 123, 150, 187, 192, 293, 305, 438). This suggests that many changes represent normal random variation in the menstrual cycle and are not related to sterilization.

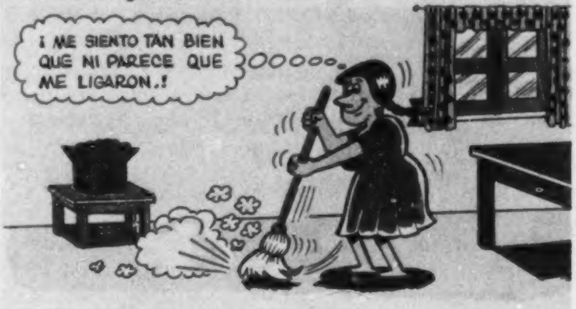
This reassuring evidence comes from large prospective studies controlling for factors known to affect menstrual patterns, such as age, prior contraceptive use, prior menstrual patterns, and medical history. In the multicenter US Collaborative Review of Sterilization (CREST) study conducted by the Centers for Disease Control, most of the 2,500 women reported no marked change after sterilization in any of six characteristics of the menstrual cycle. For example, only 10 percent of the women reported a change of three or more days in the duration of bleeding. Just over half of these women noted a decrease in the number of days, and just under half reported an increase. A total of 39 percent reported changes in the amount of menstrual bleeding, but the changes were almost equally divided between more bleeding and less (150).

A World Health Organization (WHO) study of 142 women that actually measured menstrual blood loss by a standard procedure (389) found no change on average for sterilized women or controls. The sterilized women were followed for two months before and for up to two years after the procedure, and controls were followed for a comparable time (575, 595).

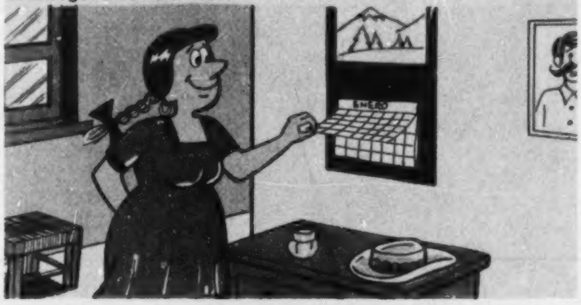
Changes in menstrual patterns after sterilization may benefit some women. In the CREST study, for example, 15 percent reported irregular cycles before sterilization compared with only 7.8 percent two years later. Overall, more than 50 percent of women with irregular cycles showed an improvement by two years after sterilization (150). Studies sponsored by Family Health International (FHI) yielded similar results—a shift toward less pain, more regular cycles, and less bleeding (187).

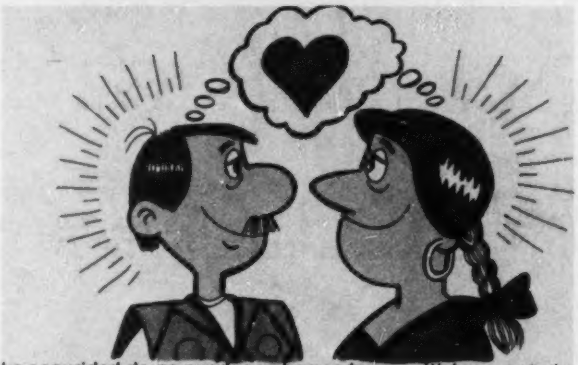
Many reported changes in menstrual patterns after sterilization are actually caused by discontinuing OCs or IUDs (293, 319, 476, 477, 520). While using OCs, women have shorter, more regular menstrual periods (289). While using IUDs, they have longer, less regular periods (323). Thus, after sterilization, former OC users report more irregular cycles and increases in cycle length, duration, and amount of menstrual flow. Former IUD users report more regular cycles and decreases in menstrual flow, intermenstrual spotting, and pain. Most of these changes occur in the first six months after sterilization as women's cycles revert to their previous patterns (60). Women using OCs and IUDs should be counseled in advance about these changes.

La operación no afecta su salud.
Los óvulos, que se siguen produciendo, los absorbe el cuerpo sin causar ninguna molestia.


¡ ME SIENTO TAN BIEN QUE NI PARECE QUE ME LIGARON.!

Esta operación no cambia su regla o menstruación; ésta seguirá como antes...





La seguridad de no quedar embarazada, permitirá que usted y su pareja puedan disfrutar más su vida sexual.

A Mexican booklet that explains vasectomy and female sterilization answers people's common questions: "The operation does not affect her health" (top); "This operation does not change her menses" (middle); "Knowing that you won't get pregnant will let you and your partner enjoy your sexual life more" (bottom).

Two prospective studies following sterilized women for four or more years suggest that some may eventually experience menstrual problems, but results are inconclusive. In the Oxford University/Family Planning Association (Oxford/FPA) study, which followed women for six years after sterilization, rates of hospital admissions and of referrals for menstrual disorders were slightly but not significantly higher for the sterilized women than for controls (550). In the US Walnut Creek Contraceptive Drug Study, sterilized women were compared with wives of vasectomized men. Four to seven years after surgery sterilized women were slightly more likely to have irregular cycles, "adverse bleeding," and menstrual cramps (148). As in other studies (123, 150, 187), women with menstrual problems before sterilization were more likely to experience problems after surgery (148).

No one sterilization technique in particular appears to affect menstrual function (59, 60, 123, 150, 170, 293, 305). In several studies, electrocoagulation, particularly unipolar electrocoagulation, which damages more tubal tissue than other techniques, appeared to cause more menstrual problems later or more pain than other techniques (150, 454, 550). Randomized clinical trials in five countries as well as several nonrandomized studies do not bear this out, however (59, 60, 187, 293, 305).

Later Gynecological Problems

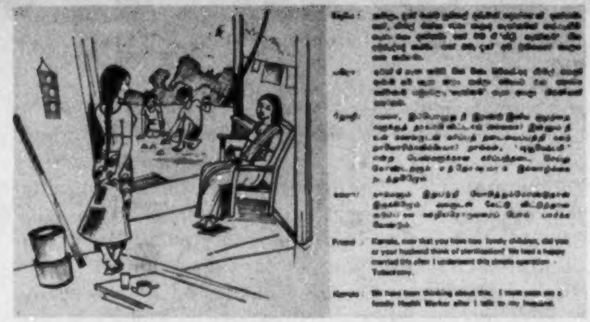
Several early studies suggested that, after sterilization, women were prone to a variety of gynecological problems leading to a high rate of hospitalization and surgery, including hysterectomy. A few researchers even have recommended that women undergo hysterectomy rather than tubal occlusion to avoid having a second surgical procedure (374, 545, 574). Recent large, well-controlled prospective studies suggest, however, that sterilization does not cause any such long-term side effects.

In one of the largest prospective studies to date, the Oxford/FPA study, there were no significant differences after six years between 2,243 sterilized and 3,551 unsterilized women in rates of hospital referral for uterine prolapse, menstrual disorders, pelvic inflammatory disease (PID), cervicitis or cervical erosion, hysterectomy, or dilation and curettage. Hysterectomy was infrequent in both groups—5 per 100 sterilized women and 4.3 per 100 controls (550).

Studies that have reported excessively high rates of hysterectomy and of gynecological problems among sterilized women often did not control for pre-existing health problems (128, 313, 374, 382, 431, 454, 490, 530). These problems are the major reasons for surgery. A 2-year follow-up of 8,100 sterilized women, for example, found that only 26 had undergone hysterectomy within two years after sterilization, and 16 of these had cervical dysplasia, cancer, fibroids, or ovarian tumors—conditions that probably developed before sterilization (105). Rates of hysterectomy may sometimes be higher for sterilized women because they may be more willing to undergo hysterectomy and doctors may be more willing to recommend it to them.

Psychological Adjustment

Sterilized women are no more likely to experience severe psychiatric problems than unsterilized women (33, 64, 550) or women in the general population (127, 129, 504). In the Oxford/FPA study, for example, life-table rates of suicide attempts and hospital referral or admission for psychiatric disorders were very similar after six years for sterilized women and for wives of vasectomized men (550). A WHO study involving 1,850 women in India, Colombia, Nigeria, the Philippines, and the UK also found no difference in rates of mental illness after sterilization. Moreover, women sterilized after childbirth or abortion were no more likely to experience mental illness than women sterilized at other times (592).



A woman who is happy with her sterilization often encourages other women to choose this family planning method, as shown in this booklet about female sterilization prepared by Community Development Services in Sri Lanka with assistance from PIACT.

Most sterilized women are comfortable with their choice. According to recent studies in developed and developing countries, only 2 to 13 percent of women interviewed from six months to six years postoperatively regretted their operations to any degree. A much smaller percentage, about one to 3 percent, seriously considered or underwent reversal procedures (7, 20, 33, 40, 64, 66, 67, 82, 102, 127, 191, 258, 305, 319, 473, 476, 496, 571, 598, 601). Interpreting the studies on "regret" is difficult since the term is not defined (576). Also, a number of studies included women who underwent sterilization for medical reasons and therefore might well be unhappy about their infertility.

Young women, age 30 or less at the time of their operations, are more likely than older women to be dissatisfied and request reversal, often because their lives change (17, 34, 46, 158, 200, 258, 299, 308, 377, 598). In developed countries remarriage is the most common reason for requesting sterilization reversal (17, 200, 299, 432, 534, 578). Women who are unhappily married at the time of sterilization also may be more likely to regret the procedure later (34, 46, 299, 423, 432, 534, 578). Some women may undergo sterilization hoping to "cure" marriage problems, according to some researchers. When this fails, they come to regret the operation (68, 299). In addition, women who

SABE USTED QUE ES
LA
LIGADURA?
APROFAM
ASOCIACION PRO-BIENESTAR DE LA FAMILIA

A pamphlet from APROFAM in Guatemala explains female sterilization to prospective clients. Female sterilization is widely used in some Latin American countries and little used in others. The differences largely reflect the availability and the cost of services.

have had psychological problems before sterilization are much more likely to be unhappy afterwards (34, 64, 129, 158).

It is not clear whether women are particularly likely to regret sterilization performed after childbirth or abortion. Some researchers find regret or mild mental illness more common after postpartum or postabortion sterilization than after interval sterilization (34, 40, 46, 64, 66, 67, 308, 377, 601). Others find no difference (19, 592). Women sterilized after childbirth may regret the operation if the child dies. In developing countries infant or child death is the most common reason for requesting sterilization reversal (19, 405).

While concern has been raised that some women will suffer marital discord and sexual dysfunction after sterilization (15, 173, 283), most women in both developed and developing countries report either no change or an improvement in their marriages. The percentage of women experiencing sexual or marital problems such as loss of libido or reduced frequency of intercourse varies widely, ranging from less than 5 percent to 20 percent in various studies (33, 64, 66, 102, 127, 258, 305, 438, 592, 594, 598, 601). In some of these cases husbands respond differently to their wives after sterilization (8, 33). In other cases women feel less "feminine" or less interested in sex because they are no longer able to conceive (33, 173, 598).

Careful counseling before the operation may help women—and their husbands—avoid emotional problems later. Couples must understand that the operation is permanent but that it affects only childbearing, not other aspects of sexual and emotional life.

RESEARCH ON NEW METHODS

Researchers have been working for many years to develop techniques of female sterilization that do not involve surgery. A satisfactory nonsurgical technique could eliminate some risks, leave no scar, and reassure women who are afraid of surgery. Several techniques have been tested, including liquid chemicals that solidify or that scar the

Reversing Female Sterilization

Most women who decide on sterilization remain satisfied with their choice, and careful counseling may help women who might later regret sterilization to choose another contraceptive method. Nonetheless, about one to 3 percent later request reversal (see p. C-147). Highly skilled surgeons using modern microsurgical equipment and techniques report that 50 to 70 percent of eligible women undergoing reversal surgery achieve intrauterine pregnancies, but success cannot be guaranteed (see Table 6). Surgeons with this expertise are few, and the reversal procedure is expensive. Also, pregnancies are about twice as likely to be ectopic as pregnancies that do not follow reversal surgery (see **Population Reports**, C-8, *Reversing Female Sterilization*, September 1980).

Factors Affecting Success

The longer the section of undamaged tube remaining after sterilization, the more likely that reversal surgery will succeed (169, 224, 315, 450, 464, 503). In one study, for example, all 12 women with more than 5 cm of tube remaining conceived after reversal surgery compared with 18 percent of 24 women with less than 3 cm (503). Most surgeons will not operate if less than 3 cm of viable tube remains (169, 414).

Because clips and rings damage the smallest length of tube, these occlusion techniques are most easily reversed. In fact, a few studies have reported over 80 percent success in reversing clip or ring procedures (179, 246, 404). Tubal ligations using the Pomeroy, Irving, or Uchida techniques are somewhat more difficult to reverse. Pregnancy rates of 45 to 70 percent have been reported (130, 190, 211, 404, 489, 579) (see Table 6).

Unipolar electrocoagulation, which usually causes extensive tubal damage and multiple adhesions, is the most difficult to reverse (201, 211, 243, 404, 455, 559). In recent reports pregnancy rates have ranged from 25 to 68 percent (224, 404, 464, 489, 579) (see Table 6), but only women with minimal tubal damage ever undergo surgery (489, 529). After reversal surgery, women sterilized by electrocoagulation often have a higher ectopic pregnancy rate than women sterilized by other methods (329, 489). In recent studies the ectopic pregnancy rate after reversal of electrocoagulation averaged 5 percent compared with 2 percent or less for other methods (see Table 6).

The site of occlusion also affects pregnancy rates. Occlusions in the isthmus are easiest to reconnect (243, 404, 455). The cut ends of the tube are of approximately the same diameter, and there are fewer folds in the mucosa (tissue lining the tubes) than there are in the ampulla, closer to the ovary (455).

Age and time since sterilization also are considered in screening women for reversal procedures. Some physicians will not attempt reversal surgery on women over age 35 or 40 because fertility declines with age, and the risk of complications during pregnancy increases. Apart from age, the chances for successful reversal may decline with the passage of time, possibly because of gradual changes in the tubal mucosa, including loss of folds, loss of cilia, and growth of polyps (546, 577).

Reversal procedures are best performed in well-equipped regional centers where an experienced surgical team maintains its skills by operating frequently (52, 577). Surgeons trained in microsurgical techniques at the Johns Hopkins University have now established centers in 25 developing countries. These centers maintain data registries to evaluate results of reversal surgery (225, 463, 465, 466). Training is now offered also in Egypt, Thailand, and several countries in Latin America (86).

tubes. The reversibility of these new methods has not been tested. Because they cause extensive tubal damage, they may be less reversible than surgical sterilization.

Chemical Compounds

To date, the most promising chemical compounds tested for female sterilization are:

- phenol compounds,
- quinacrine,
- methyl-cyanoacrylate (MCA).

The chemicals are delivered to the fallopian tubes through a cannula or tube inserted through the cervix and uterine cavity. In liquid, paste, or solid form, the chemicals are pushed into the tubes by a pushrod or by a specially designed pump. The chemicals damage the lining of the tube, causing the growth of scar tissue, which blocks the tubal opening. Up to three applications are usually necessary, however, before the tubes are completely blocked, and women must use another method of contraception for several months until the procedure is complete.

Phenol (carbolic acid) compounds are employed in the only nonsurgical techniques in actual use. In China two compounds have been tested—phenol-atabrine paste (PAP) and a phenol mucilage. PAP consists of equal parts of phenol and atabrine (quinacrine hydrochloride) plus a radiopaque substance. In a 2-year study of almost 10,000 women in the Shanghai area, PAP blocked both tubes in 99 percent (610).

The second phenol preparation—a mucilage that does not contain atabrine—works similarly but contains thickening agents to make the substance more adherent and thus prolong contact with the tubal lining (612). In the latest Chinese series reported, almost 98 percent of 448 women treated with this mucilage had both tubes blocked (98, 286, 612). Pregnancy rates have not yet been reported.

Between 1975 and June 1983 the phenol mucilage technique was used in an estimated 50,000 to 100,000 sterilizations in China (203). Two hundred medical units offered the procedure in 1983 (599), and training programs are underway all over China (202, 286, 610). Phenol compounds are rarely used outside of China.

Quinacrine, a sclerosing (hardening and thickening) agent that rapidly damages the tissues of the tubal lining, is administered in pellets. Research is underway to try to reduce the number of quinacrine applications needed from three to one (199, 213, 278, 279, 303, 568, 615).

In several small studies one-year pregnancy rates after three applications of quinacrine ranged from 1.2 to 3.1 per

Table 6. Pregnancy Outcomes Following Reversal, Using Magnification or Microsurgery, of Various Techniques of Female Sterilization, Selected Studies, 1980-1984

			% of Women Experiencing:		
Author & Date (Ref. No.)	Place	No. of Women	Term Pregnancy	Spontaneous Abortion	Ectopic Pregnancy
Reversal of Sterilization by Spring-Loaded Clip					
Noble & Letchworth 1982 (246)	UK	12	75[a]	NA	0
Owen 1984 (404)	Australia	24	96	NA	4
Wheeless 1982 (246)	UK	12	83[a]	NA	0
Winston 1982 (246)	UK	15	100[a]	NA	0
Others[b] 1982 (246, 464)	UK, US	26	81[a]	NA	4
TOTAL		89	88	NA	2
Reversal of Sterilization by Filshie Clip					
Filshie 1984 (179)	UK	15	93[a]	7	0
Reversal of Sterilization by Ring					
Owen 1984 (404)	Australia	37	95	NA	3
Rock et al. 1982 (464)	US	22	77	5	0
Rock et al. 1984 (466)	Indonesia, South Korea, Thailand	25	56	8	4
Others[b] 1983 (489, 579)	US	9	44	NA	0
TOTAL		93	75	NA	2
Reversal of Sterilization by Pomeroy Ligation					
Owen 1984 (404)	Australia	120	70	NA	3
Rock et al. 1982 (464)	US	31	55	13	3
Rock et al. 1984 (466)	Indonesia, South Korea, Thailand	94	45[c]	10	1
Seiler 1983 (489)	US	40	63	NA	0
Wittich 1983 (579)	US	14	50	NA	0
TOTAL		299	59	NA	2
Reversal of Sterilization by Irving Ligation					
Various researchers[b] 1982–84 (464, 466, 489, 579)	Indonesia, South Korea, Thailand, US	19	47[c]	NA	0
Reversal of Sterilization by Electrocoagulation					
Henderson 1984 (224)	US	12	50	17	0
Owen 1984 (404)	Australia	71	68	NA	3
Rock et al. 1982 (464)	US	48	35	8	8
Rock et al. 1984 (466)	Indonesia, South Korea, Thailand	93	25[c]	12	4
Seiler 1983 (489)	US	22	67	NA	9
Wittich 1983 (579)	US	12	25	NA	8
TOTAL		258	43	NA	5

Note: For earlier studies, see **Population Reports**, C-8, *Reversing Female Sterilization*, September 1980.

NA = not available

[a] Includes all intrauterine pregnancies

[b] Combines data from reports of fewer than 10 cases each

[c] Includes stillbirth

100 women (54, 56, 213, 279, 286, 444, 451, 614). None of the over 200 pregnancies reported by 1981 was ectopic (56, 278). US trials are about to begin comparing the effects and safety of quinacrine with those of tetracycline, another occlusive agent (488).

Methyl-cyanoacrylate (MCA) is a tissue adhesive that turns from a liquid to a solid when it comes in contact with fluid in the tubes. MCA is instilled using a specially designed tube and pump instrument (called Femcept) with an attached balloon that inflates just after MCA is released into the uterus. The pressure of the expanding balloon drives the MCA into the tubes just before it solidifies (286). Usually two applications, a month apart, are required.

Using current formulations of MCA and redesigned instruments, closure of both tubes after two applications—as checked by x-ray—has been reported in 87 to 98 percent of cases (143, 198, 370, 452). The MCA/Femcept system has been approved for sale in Canada and the Netherlands (13, 196, 302, 386). The United States Food and Drug Administration (US FDA) has given preliminary clearance for a limited clinical trial of MCA. The study will be conducted in a New York hospital among women for whom surgery would pose high risks (386).

Sterilization with chemical compounds is a relatively simple procedure. It can be performed in an outpatient clinic without any anesthesia. With any nonsurgical sterilization technique, however, careful selection of patients is important. Ten to 15 percent of women requesting sterilization may have uterine abnormalities, tubal pathology, or other conditions that preclude use of some of these techniques (126, 447).

In China trained paramedical workers have administered phenol compounds for sterilization (599, 612). Technical difficulties—problems finding or filling the tube on the first try—occur in about 8 percent of procedures. This is detected by an x-ray immediately afterward, and the process can be repeated at that time or the next morning (599, 610, 612). Failures are usually due to improper instillation or too thick a mixture (599).

Chemical means of female sterilization cause few side effects. Mild to moderate pain during the procedure is common (143, 286, 388, 451, 599, 610, 612, 613). A few uterine perforations have been reported, but perforation appears to be less frequent than with IUD insertions. Phenol preparations sometimes cause minor fever, dizziness, nausea, pelvic inflammation, or vaginal discharge. These side effects have reportedly not been serious or lasting (286, 451, 599, 610, 612).

Other Methods

Formed-in-place silicone plugs (Ovabloc) have been tested in clinical trials involving over 2,000 women in the US (603). Liquid silicone is delivered to the tubes through a hysteroscope—a magnifying instrument providing a direct view inside the uterus. In the tubes the silicone quickly solidifies to form a plug occupying about two-thirds of the tubal channel (286, 435). Plugs successfully form in both tubes in 80 to 95 percent of carefully selected patients, although repeated applications of silicone may be required (126, 233, 326, 327, 447, 448, 449). The pregnancy rate is less than one percent (603). There have been few significant complications (326, 447). A small number of uterine perforations have been reported (447, 603). In the US, animal studies are underway to assess the long-term safety of silicone in contraceptive appliances (386, 501).

Other hysteroscopically introduced methods in earlier stages of development and testing include two types of solid tubal plugs (75, 232); a thread-like intratubal device (196, 202, 216, 386); and cryosurgery (freezing) of the cornua (where the tube and uterus join), using liquid nitrogen to produce scarring (125, 162, 485).

Silicone fimbrial prostheses (caps or hoods) are also being developed (56, 279, 301). It is hoped that these devices can be both placed and removed by minilaparotomy. The procedure has proved reversible in rabbits and monkeys, but human trials have not begun (302).

More research is necessary on all these techniques. Further study and practical experience will make clear whether they will be preferable to minilaparotomy and laparoscopy. Meanwhile, both minilaparotomy and laparoscopy provide quick, safe, and effective means of permanent contraception.

PROGRAM ISSUES

Many women want voluntary sterilization. While about 95 million women currently of reproductive age have obtained sterilizations, many others have been unable to obtain procedures because personnel and facilities are in short supply. Thus a major issue facing family planning programs is meeting the demand for voluntary sterilization with services of the highest quality.

Unmet Demand

The fact that female sterilization is the most widely used method of family planning (see pp. C-127–130) indicates the worldwide demand for the procedure. Evidence suggests, however, that many women who want sterilization have not been able to obtain it. In surveys conducted in Guatemala, Panama, and 10 states of Brazil since 1978, 44 to 72 percent of women who were not sterilized or subfecund and who wanted no more children expressed interest

In Jamaica at least 10 percent of married women of reproductive age rely on female sterilization for family planning. Yet officials estimate that, because of the shortage of facilities, only half of the women who want sterilizations can obtain them. (World Bank) in voluntary sterilization, regardless of whether they were using another contraceptive method at the time (365). The percentages of interested women are listed below:

Guatemala 1983	61	**Brazil (continued)**	
Panama 1979	72	**Pernambuco 1980**	55
Brazil		**Piauí 1982**	49
Amazonas 1982	69	**Rio Grande do Norte 1980**	49
Bahia 1980	59	**São Paulo 1978**	44
Paraíba 1980	55	**3 southern states 1981**	53

In a 1978 survey in Bangladesh, among women who were not sterilized, 11 percent wanted to undergo the procedure (9). If applied nationwide, this would have amounted to nearly 600,000 procedures (9) and would have raised the prevalence of female sterilization in 1979 from 3 to 14 percent of MWRA (see Table 2). Even women who have *not* yet had all the children they want are interested in sterilization for the future. In Paraíba state, Brazil, for example, 45 percent of women who wanted more children said that they would be interested in sterilization after they had all the children they wanted (467).

Even in Africa, where the percentage of women who want no more children is usually lower than elsewhere (590), the number of women interested in sterilization is not negligible. In Sudan, for example, where services for voluntary sterilization are quite limited, a survey of 500 female clients at two prenatal, antenatal, and family planning clinics found that 51 percent of the 356 women who knew of female sterilization were interested in having the operation themselves (3). In a small survey at Rubaba Hospital in Uganda, 65 percent of women said that they would want voluntary sterilization (333).

Futhermore, sterilization is often the contraceptive method preferred by women who are not now using any contraception but want to. In 11 Latin American and Caribbean areas, Jordan, and a province of Tunisia, sterilization was the preferred method of between 8 and 38 percent (see Table 7). Sterilization often ranked second, after oral contraceptives.

Waiting lists for voluntary female sterilization further indicate the unmet demand for services. In Kenya, for example, at one Family Planning Association clinic, which is able to perform 10 to 12 procedures a week, there was a 6-month waiting time in 1984. Public hospitals have waiting times as long as 18 months (625). At a Kenyan general hospital in late 1983 three Indian doctors were invited to help the chief of obstetrics and gynecology reduce the list of 500 women waiting for voluntary sterilization. Together they performed 150 procedures. Yet within several months the waiting list had again reached 500 names (21, 236). Also in Kenya, when a maternity hospital in Nairobi began offering voluntary sterilization services, most of the maternity ward and recovery ward beds were soon occupied by voluntary sterilization clients. Because of lack of resources, the hospital had to limit services to postpartum procedures for high-risk clients. Hospital staff have estimated that 20 women a day would come for sterilization if services were available (21). The district hospital in Kisii, Kenya, currently performs 30 procedures a day but could perform at least 40 if operating rooms were available (642).

Shortages of female sterilization services lead to waiting lists—and unwanted pregnancies—in many other countries. For example, in 1983 Jamaican officials estimated that half of the demand for female sterilization procedures remained unmet because of lack of facilities (339). Among a group of Brazilian women who wanted to be sterilized postpartum but were not sterilized—mostly because doctors refused them or they did not have cesarean deliveries—18 percent became pregnant within a year following delivery (261). In Honduras, among women who wanted to be sterilized but were not, over 40 percent became pregnant within two years, although half of these women later said that they wanted the pregnancy (629).

Table 7. Preference for Method of Contraception Among Currently Married Nonusers of Reproductive Age Who Want to Use Contraception or Who Express a Preference

Region, Country & Year (Ref. No.)	% of Women Preferring Method									
	Sterilization	Orals	Condom	IUD	Injectables	Rhythm	Other Method	Any Method	Do Not Know	Total
Latin America & Caribbean										
Brazil[a] (14)										
Amazonas state 1982	22	37	2	1	b	11	—24—		3	100
4 northeast states 1980	26	28	1	2	b	7	—36—		0	100
Piauí state (1982)	15	39	6	2	b	5	—16—		19	100
3 southern states 1981	8	43	3	5	b	4	— 5—		32	100
Colombia 1978[c] (367)	31	35	2	7	15	7	4	NA	d	100
El Salvador 1978[a] (367)	38	28	4	3	7	b	8	8	4	100
Guatemala 1983[a] (428)	18	27	b	4	14	b	4	1	31	100
Jamaica 1979[e] (367)	13	39	5	2	28	b	10	3	d	100
Panama 1979-80[a] (367)	33	36	1	10	7	b	2	1	11	100
Middle East & North Africa										
Jordan 1983[a] (269)	8	33	1	37	b	11	1	1	8	100
Tunisia										
Jendouba 1979[c] (367)	36	42	2	18	0	1	2	NA	d	100

NA = not available; question not asked.

[a] Brazil, El Salvador, Guatemala, Panama, Jordan—Percentage of currently married nonusers who want to use contraception

[b] Included in Other Method

[c] Colombia, Tunisia—Percentage of currently married nonusers who express a preference, regardless of desire to use

[d] Not applicable; denominator consists of only those who expressed a preference.

[e] Jamaica—Percentage of currently married nonusers who want to use contraception and expressed a preference

Source: Anderson (14), Morris et al. (367)

Making Services Available

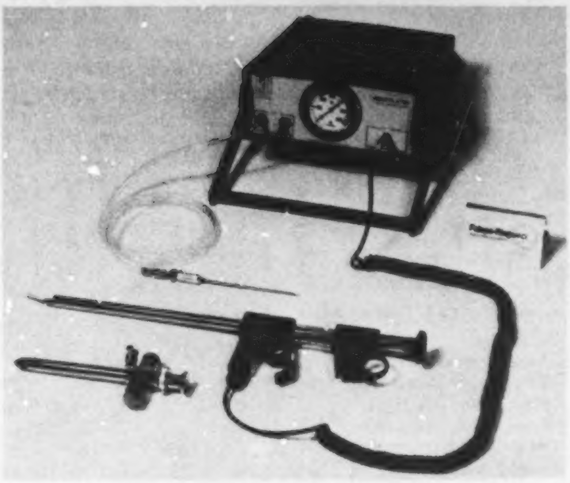
The rapidly growing prevalence of voluntary female sterilization (see Figure 1 and pp. C-127-130) reflects the progress that health care providers are making toward meeting the demand for sterilization services. Female sterilization has become more available for various reasons:

- technological advances,
- law and policy changes,
- changing attitudes among doctors,
- more training for health care personnel,
- more services delivered through a variety of channels,
- lower costs to clients, and
- improved communication.

Much remains to be done in many areas, however.

Technological Advances

The development of minilaparotomy and laparoscopy have made female sterilization more widely available. With minilaparotomy and laparoscopy female sterilization can be performed quickly, safely, with local anesthesia, on an outpatient basis, and in free-standing facilities. The result-



A Laprocator kit for ring sterilizations consists of (top to bottom) a combined insufflator and light source, insufflation tubing and needle, ring applicator (connected to the fiber-optic cable), and a trocar in a sheath. (Courtesy of Cabot Medical Corporation)

ing savings in time and cost and the independence from the hospital setting make it possible to serve many more women (446). The development of various options in laparoscopy has further increased its availability: the single-puncture approach as an alternative to double-puncture; bipolar electrocoagulation as an alternative to unipolar; tubal rings as a less expensive and safer alternative to electrocoagulation; and room air for insufflation as an alternative to carbon dioxide, which can be difficult to obtain (632).

Further technological advances can be expected to increase both the demand for and the opportunities to provide female sterilization services. Clips, not yet widely used, currently appear to offer the best chances for surgical reversal of sterilization (see p. C-148), and thus might appeal to some women. Much research is now focusing on nonsurgical methods of female sterilization (see pp. C-148-150). Nonsurgical methods could broaden the appeal of female sterilization, since fear of surgery is a major reason that women do not choose sterilization (9, 333, 365, 468, 502). Also, some nonsurgical methods could be safely performed by trained nurses and paramedical personnel.

Law and Policy

Voluntary sterilization is now legal in nearly all countries. Since 1973 at least 24 countries have taken action to establish the legality of voluntary sterilization (see **Population Reports**, E-7, *Laws and Policies Affecting Fertility: A Decade of Change*, November 1984). Many countries have special provisions of law—statutes, ministry regulations, or presidential decrees—that specifically permit voluntary sterilization for family planning. Among these are Denmark, the Dominican Republic, Ecuador, Finland, New Zealand, Panama, the Philippines, Spain, Sweden, Tunisia, and Turkey. In many other countries voluntary sterilization is legal because no law prohibits it. These countries include China, Bangladesh, Ghana, India, Kenya, Mexico, Nigeria, the UK, and the US. Voluntary sterilization is explicitly illegal in only a few countries, for example, Burma, Iran, and Saudi Arabia (256).

In a number of countries, however, the legal status of voluntary sterilization has not been clarified. In particular, most French-speaking African countries and some countries of Latin America still have laws dating from colonial rule that once were interpreted as banning voluntary contraceptive sterilization. Also, in some countries where Islamic law governs, the legal status of voluntary sterilization may not be clear (256, 516). Prosecutions of doctors are virtually unknown in any of these countries, however, and the actual availability of voluntary sterilization varies greatly (256).

Policies limiting sterilization to cases of substantial therapeutic need may be a more widespread barrier to services than blanket restrictions or ambiguous laws. For example, until 1983 the medical code in France limited voluntary sterilization to "very serious" medical reasons (72). The Venezuelan medical code of 1977 permits sterilization only for eugenic or therapeutic reasons (539). Until 1984, the Brazilian Medical Ethics Code required three doctors in conference to declare an "exceptional" need for sterilization. Doctors interpreted exceptional need to include cases of women who would be at high risk if they became pregnant (264). The requirement for a conference of three doctors, however, was bypassed in cases of emergency surgery such as cesarean section. Perhaps as a result, most sterilizations in Brazil were performed along with cesarean section, and the rate of cesarean deliveries was one of the highest in the world (468). In 1984 the code requirement was eliminated. The new code requires doctors to follow existing legislation, which does not prohibit sterilization. Voluntary female sterilization is now more available and is increasingly performed as an interval procedure (628).

Restrictive policies sometimes require that a woman be a minimum age, have a minimum number of children, or a combination of the two. In Honduras, for example, voluntary sterilization is legal (516), but the Ministry of Health has required women who want to be sterilized to meet the "rule of 80": a woman's age times the number of her living children must equal or exceed 80 (265). Hospitals or individual doctors, as well as governments, may impose such restrictions or other requirements that discourage clients, such as requirements to produce a marriage license and other documents or to use a specified contraceptive method temporarily to be sure that they will not be pregnant at the time of sterilization (176, 300). These requirements may be designed to help protect programs or institutions against damage to their reputations if a woman later regrets sterilization or discovers that she is pregnant. In many places, however, such requirements have been eliminated or reduced (516). In the Dominican Republic, for example, an age requirement was dropped after a study discovered that the average woman sterilized in 1977-78 was about 31 years old but already had six children (481). When women receive thorough counseling and their decisions are fully informed and voluntary, arbitrary restrictions are not necessary (654). Because policy-makers in government and the medical profession can have a major influence on the availability of services, they need to be aware of the demand for sterilization services and to understand the benefits.

Attitudes of Health Care Providers

Even more important than law and policy may be the attitudes of doctors and other health care providers. Often doctors have been more reluctant to perform female sterilizations than women have been to seek them out (523). Recent surveys in eight areas of Brazil, for example, found that 12 to 28 percent of women who wanted to be sterilized had been refused by doctors. Generally, only cost was a more common deterrent (468). Similarly, in Kenya the chief of obstetrics and gynecology at a major hospital noted that the chief barrier to more extensive services was not facilities or training, but the attitudes of many doctors (21). In several African countries there have been reports of nurses discouraging women who wanted sterilization from having the procedure (624).

Doctors are reluctant to perform female sterilization for various reasons. Some may refuse because of personal beliefs. Some may think that voluntary sterilization is illegal, even when it is not (523). Others may think that sterilization is against women's best interests and fear that women will regret sterilization later. In Africa, in particular, doctors and nurses are concerned that women will be abandoned by their husbands or suffer social disapproval if they can no longer have children (333, 402). Thus they are highly protective of women's fertility. Still others may approve of voluntary sterilization in principle but are forced to give it low priority because of the immediate demands of curative health care and emergencies (333, 523).

Information about voluntary sterilization that can help to meet the concerns of health care personnel includes:

- Findings from surveys about high rates of satisfaction and low rates of regret among sterilized women (see p. C-147);
- Information about the health benefits of sterilization, not just for women at especially high risk, but for any woman who has had all the children she wants (see **Population Reports**, J-27, *Healthier Mothers and Children Through Family Planning*, May-June 1984);
- Data on the safety of modern sterilization techniques for both women and men (see pp. C-139–144 and **Population Reports**, D-4, *Vasectomy—Safe and Simple*, November-December 1983).

Training

Progress over the last decade in training health personnel has contributed greatly both to meeting the existing demand for female sterilization and to informing potential users. International training programs have played a leading role, training some of the foremost practitioners throughout the world. Many of these doctors in turn are training others.

For example, the Johns Hopkins Program for International Education in Gynecology and Obstetrics (JHPIEGO) provided clinical training in reproductive health care to over 2,900 doctors and supplied over 1,620 laparoscopes between 1973, when the program started, and 1983. Surveys answered by 757 former participants found that each of them trained an average of one person each month. Among those who taught, almost 80 percent were teaching postpartum sterilization and about two-thirds were teaching interval minilaparotomy, diagnostic laparoscopy, and/or laparoscopic sterilization (88).

In one country, South Korea, more than 100 doctors were trained just before laparoscopic sterilization was introduced into the national family planning program in 1976 (292, 446). By the end of 1978 over 560 laparoscopes had been imported. All but 100 of these were privately purchased. By 1979 the Korean government had named 12 institutions to provide in-country training in sterilization techniques (292).

Training can be of three types: (1) short-term special courses to provide initial training for practicing health care personnel, (2) training incorporated into medical school curricula, and (3) refresher courses. An Expert Committee on Training convened by the World Federation of Health Agencies for the Advancement of Voluntary Surgical Contraception concluded that full initial training requires 5 days of classroom instruction plus either 5 days of practical training for minilaparotomy or 7 to 10 days of practical training for laparoscopy. Training can be conducted in almost any facility capable of accommodating procedures and with a caseload that provides surgical teams with enough practical experience. Mobile units and camps, however, are not usually suitable training sites. Ideally, surgical teams should be trained in a facility like the one where they will practice. Whenever possible, the entire surgical team should be trained together (589). Various experts conclude that each trainee should perform a minimum of 10 minilaparotomies or open laparoscopies (589) or 15 laparoscopies under supervision (88, 589). When training is incorporated into medical school curricula, students usually need to perform a greater number of supervised procedures to become fully competent.

Refresher courses and follow-up of former trainees help to maintain the quality of services and to insure that new findings and improvements are incorporated in ongoing services. For example, refresher courses on anesthesia have been recommended to make sure all surgical teams are using local anesthesia and using it in proper regimens (see p. C-139). The World Federation Expert Committee on Training has called on training institutions to follow up trainees for at least one year, including a visit within six months to see the former trainees at work (589).

Where doctors cannot meet the demand for sterilization services, nurses and nurse-midwives have been trained to perform interval or postpartum minilaparotomies. In pilot studies comparing doctors' and nurses' performance in Bangladesh, Thailand, and Uganda, nurses have performed procedures as safely as doctors (121, 164, 166, 186, 194, 482). In 1985 Thailand began training nurses to perform female sterilizations on a regular basis.

Service Delivery Through a Variety of Channels

Ultimately, substantial progress toward meeting the demand for voluntary female sterilization in developing countries has usually depended on organized programs, public or private. Nevertheless, in many developing countries independent private doctors and autonomous medical institutions such as medical schools have been the first to offer sterilization services (84, 267, 586). They remain major providers of services in some areas (155, 363, 445, 468, 586). In other countries private doctors now play an important role by working with organized programs. For example, private nonprofit organizations in Thailand and the Dominican Republic and the government in South Korea reimburse private doctors for performing voluntary sterilizations (84, 267).

Private family planning associations have often been the first to organize services as well as to encourage governments to provide services. The work of these organizations has revealed the demand for services, demonstrated the feasibility of providing services, and overcome fears that voluntary sterilization is too controversial (267, 586).

Offering voluntary sterilization services in national government family planning programs is a fairly recent step and is still limited to Asian and a few Latin American countries. For example, Thailand began offering sterilization services in 1970; South Korea, in 1973; Taiwan, in 1974; the Dominican Republic, in 1975; and Mexico, in 1980 (516, 586). Eventually, for the widest availability of services, private doctors, private organizations, and government all need to be involved (267).

Voluntary sterilization services can be offered postpartum or independently of childbirth, in hospitals or in freestanding facilities. In many countries, including the US and a number of Latin American countries, postpartum sterilization accounts for at least half of all female sterilizations (344, 368, 468). Offering postpartum services in hospitals is one way that programs can start providing female sterilization with minimal cost and controversy (267).

Still, postpartum services are not adequate to meet the demand. Lack of operating room time and space and lack of doctors are the major problems (259, 265, 267). Hospitals often are desperately overcrowded and emergency care takes precedence over routine procedures. To alleviate this problem, in various countries donors have supported renovation of space dedicated to voluntary sterilization in existing hospitals (267).

More facilities for postpartum sterilization are not enough, however. Interval sterilization services also are needed. In Brazil, for example, difficulty in obtaining interval procedures (261, 468) "often implies undesired deliveries in order to have access" to postpartum sterilization (468). In surveys, between 4 and 13 percent of married Brazilian women who wanted no more children and were interested in sterilization said that they were waiting to be sterilized at their next delivery (468).

There are a number of ways that services can be delivered outside of hospitals. Interval laparoscopies and minilaparotomies can be performed in high-volume freestanding urban centers. These centers use referral net-

Care and Maintenance of the Laparoscope

Laparoscopes are delicate and costly. With proper care, they can be used for at least 10 years. Without proper cleaning and maintenance, however, laparoscopes will develop problems and may spread infection.

Cleaning and Disinfecting the Laparoscope

The laparoscope should be disassembled, washed, and disinfected after every procedure. The equipment should be washed in warm water and a mild liquid soap—not saline solution (10, 172). The equipment, especially the insides of the channels, should be scrubbed with brushes to remove any blood or tissue. Dried blood on the laparoscope may spread infection and can cause equipment problems (10, 325). The equipment should be rinsed thoroughly and dried with a soft cotton cloth or left to air-dry. The lenses should be cleaned with cotton swabs soaked in alcohol or acetone (10).

Once cleaned, the laparoscope must be disinfected. Chemical disinfectants are the most practical and effective. They do not kill all bacterial spores in a short time, as heat or gas sterilization does (206, 238, 325). In the US CREST study, however, the rates of incision and pelvic infections were the same whether laparoscopic equipment was disinfected with a chemical solution or sterilized with ethylene oxide gas (238). Heat sterilization has been used for parts of the laparoscope, but heat can damage rubber, plastic, fiber optics, and lenses (325). Ultraviolet light sterilization is not recommended because it has not been proven effective (587).

The most widely recommended chemical disinfectants are a 2 percent solution of glutaraldehyde (trade-named Cidex) and a 2 percent solution of alkaline glutaraldehyde (trade-named Sporicidin) (10, 133, 241, 325, 540, 587). The disinfectant solution should be changed regularly according to the manufacturer's recommendations.

After the instruments are disinfected, they must be rinsed thoroughly in sterile water to remove disinfectants, most of which are caustic and could burn the woman's skin or internal organs or the doctor's eye (10, 325).

Maintaining the Laparoscope

If a laparoscope is well-cared for, only minor repairs are usually needed, such as replacing rubber seals and washers (397). Regular cleaning and gentle handling prevent most difficulties. If the equipment is not well-maintained, however, major problems such as cracks in the fiber-optic light cable or scratches on the lenses are common (10, 172).

The doctor and others on the surgical team should be trained to clean, disassemble, disinfect, and reassemble the laparoscope. The staff also should be able to change light bulbs and to make other minor repairs (172, 491). One or two nurses or operating room technicians should be responsible for maintaining the equipment. A maintenance checklist should be posted in every operating room (10, 172).

Maintenance of a laparoscope can involve considerable cost. A recent review of costs in Colombia found that spare parts for laparoscopes and associated equipment were costing an average of $1.73 (US) per procedure. By comparison, the Laprocator ring applicator was costing $.72 per procedure (398).

About two dozen repair and maintenance (RAM) centers around the world perform major repairs on laparoscopic equipment and stock spare parts. Supported by the Association for Voluntary Sterilization (AVS) and JHPEIGO, these centers are staffed by trained technicians. Doctors can either bring their laparoscopes to the centers for repair or call for advice. RAM technicians travel to each facility in the region once or twice a year to check the equipment and to train surgical staff (334, 397).

works to inform and follow up clients in surrounding rural areas. Minilaparotomies—interval or postpartum—can be performed in rural health posts and doctors' offices. Where there are no doctors, or until local doctors can be trained, mobile teams can use the operating facilities of a local health post or set up temporary facilities (396, 583). Arranging mobile services can be complex and expensive, however, and overemphasizing them could slow development of permanent local facilities (267, 586).

Cost

Ability to pay, whether personally or through private insurance or through full government funding of services, often determines whether a woman can obtain voluntary sterilization. For women who can afford private doctors' fees, which in 1980 ranged anywhere from $35 to $2,000 (US) (484), services can usually be obtained, at least in large cities. For poor women, however, cost can be the major barrier to voluntary sterilization. This has been well documented in Latin America. In Honduras, for example, 20 percent of a group of women who had wanted to be sterilized, but had not been, cited cost as the reason (265). In nine Brazilian states 20 to 59 percent of women who were interested in sterilization, and who knew where to find information about it, cited cost as the major reason that they had not been sterilized. Cost was the barrier most often cited in seven of the nine Brazilian states (365). Among Brazilian women who want to be sterilized postpartum, those whose medical care was covered by private insurance or public social security systems were much more likely to obtain sterilization, although usually along with cesarean section (262, 264).

Lowering costs to clients can increase use dramatically. In South Korea before 1976, government reimbursement to doctors who performed female sterilization procedures covered only one-third of the cost, and clients had to pay the rest. In 1976 the government started covering the entire cost of female sterilization (292). Chiefly as a result of this change and the simultaneous introduction of laparoscopy, the number of voluntary female sterilizations increased from an average of 7,000 per year between 1972 and 1975 to 180,000 or more per year between 1977 and 1980 (292, 394). In the Netherlands coverage of the cost of sterilization by national and private health insurance started in 1973. This change, as well as the introduction of minilaparotomy and laparoscopy, is credited with an increase in both male and female sterilizations from a few thousand each per year in the early 1970s to over 50,000 each per year in the late 1970s (280).

Many national family planning programs provide voluntary sterilization services free of charge. These countries include Bangladesh, China, India, Malaysia, the Philippines, South Korea, Thailand, Jamaica, and Tunisia (394). Others, such as Hong Kong and Taiwan, offer services free to women who cannot pay but charge others (394). Still others charge some fee covering at least part of the cost. In surveys of program charges around 1980, among 29 developing countries, 16 provided services free, and 13 charged fees to at least some users. The fees ranged as high as $50 (US) but in 6 of the 13 countries were less than $10 (394, 484). A few countries—China, India, Singapore, South Korea—promise substantial long-term benefits to men and women who choose sterilization (256). In a number of other countries, programs offer services free of charge and provide clients with a small payment in compensation for lost wages, transportation costs, or other expenses incidental to surgery (256).

Private doctors' services cost much more than any program fees. In 14 of the same countries where program costs were surveyed, the average cost of sterilization privately performed was about $240 (US). In most of these countries the minimum cost was at least $100 (484).

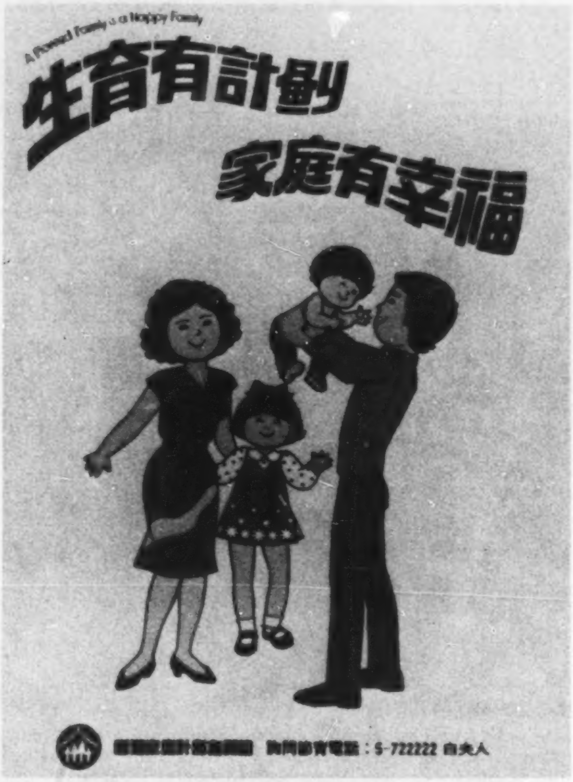
How much does it cost family planning programs to provide female sterilization services? Estimates from three programs are roughly comparable. In Colombia from 1977 through 1980, sterilizations (over 98 percent of which were female) cost PROFAMILIA between $38 and $59 each, measured in 1980 US dollars (267, 400). In Nepal in 1979-80 the cost of a female sterilization procedure was about $45 (US). By comparison, a vasectomy cost about $38; an IUD insertion, $18; a year's supply of oral contraceptives or condoms, $13 (531). In Kenya rough estimates of costs in 1984 ranged from $28 for female sterilization procedures performed in mission hospitals to $35 for procedures performed through public programs or private organizations to $48 for procedures performed by private doctors (625). (Capital costs are not included in any of these estimates.)

While the cost of sterilization may seem higher than the cost of other methods, it is a one-time expense that provides long-term protection. Thus in the long term sterilization is often one of the most cost-effective contraceptive methods. In Nepal, for example, the estimated average age of women who chose voluntary sterilization in 1979-80 was 32 years. Assuming that these women receive 13 years of contraceptive protection (through age 45), the cost of one couple-year of contraceptive protection (CYP) averaged $3.46 (US). By comparison, the cost per CYP of vasectomy averaged $2.92; of oral contraceptives or condoms, $13 (531).

A woman who has chosen voluntary sterilization meets a family planning worker who has come to give her a ride to the clinic. In a number of countries, especially in Asia, national family planning programs provide voluntary sterilization without cost to the woman. Elsewhere cost is often the major obstacle for women who want voluntary sterilization services. (Pathfinder Fund)

Reducing costs and increasing financial self-reliance are important goals for all family planning programs. While seeking to expand services as much as possible, programs must keep cost per procedure low. Choices of minilaparotomy or laparoscopy and of service delivery channels need to be made with unit cost in mind (267). Certainly out-patient procedures performed with local anesthesia are far less expensive than hospitalization and general anesthesia. Planning the location, size, and staffing of facilities so that all can operate at high volume will maximize the use of resources and personnel and also contribute to greater safety. Cost accounting should be a part of routine record-keeping so that the efficiency of every aspect of the program can be evaluated (481). Some programs minimize costs by obtaining volunteer help with day-to-day operations from doctors, community residents, and service organizations (364).

Achieving greater financial self-reliance reduces dependence on international and foreign donors (267). For government programs, increased reliance on national funds requires the full commitment of political leaders based on their understanding of the need and demand for services (586). For privately operated programs, diversification of income sources can help to assure financial security (267). In addition to receiving support from national governments and international donors, private associations have generated income from charitable donations by businesses and individuals, as in Panama (304); donations of services, land, buildings, and money by the community or local residents, as in Kenya (364); and charges to clients, as in Colombia (83). Charges to clients will inevitably reduce the number who can obtain services, as occurred when PROFAMILIA in Colombia had to raise its fees in 1980 (400). Nonetheless, when funds are short, a balance may have to be found between revenue and availability of services. Charges can be made less burdensome if clients can make installment payments and charges are varied according to ability to pay (83, 267). PROFAMILA helps to support sterilization services with income from other medical services such as diagnostic laparoscopy, infertility treatment, and obstetrics and gynecology clinics (83).


A Planned Family is a Happy Family
生育有計劃
家庭有幸福
：5-722222

"A small family is a happy family" proclaims this poster from Hong Kong. Developing messages that satisfy the audience's needs requires study and pretesting with the help of audience members.

Communication About Sterilization

Information, education, and communication (IEC) should be an integral part of all family planning programs. In many countries there has been a natural progression of IEC activities related to voluntary sterilization (653). The first stage involves pilot demonstration services and/or training programs for doctors in hospitals, clinics, and often in university-based teaching centers. Clients are recruited by personal contact from the current clientele of the facility. IEC activities rarely extend beyond the hospital. Counseling and word-of-mouth recommendations from satisfied users are the major forms of communication. Long since achieved in Asia, this stage was reached about a decade ago in many Latin American countries and more recently in some African countries.

The second stage involves doctors communicating with policy-makers and opinion leaders, government officials, other doctors, and selected media. Private voluntary agencies may be organized. They can prepare printed matter for sophisticated readers or organize meetings to inform influential people about the impact of voluntary sterilization on fertility and health. This stage has been reached in most non-Muslim Asian countries and in some parts of Latin America.

The third stage occurs as sterilization services become more widely available and secure government support. Public mass media campaigns, designed and carried out with professional help, are added to existing communication efforts. IEC programs of this nature on voluntary sterilization have been developed in a number of Asian programs, including India, South Korea, Thailand, and Hong Kong, and also in El Salvador. They are under consideration in other areas.

Whatever the stage of effort, effective IEC activities require attention to a number of factors, usually classified as **purpose, audience, message, media,** and **source** (636):

Purpose. The purpose of communication about sterilization should be carefully defined, with clear, measurable objectives (636, 647, 650). For example, the purpose of a communication effort directed at health personnel may be to encourage use of local anesthesia or to improve counseling of clients. The impact of the effort can be measured by observing clinic practices and examining records. The purpose of a communication effort directed at high-risk older women with many children may be to encourage them to consider voluntary sterilization. Results can be measured simply in terms of an increased requests for procedures or, eventually, in terms of less maternal mortality as a result of fewer pregnancies among high-risk women.

Audience. The audience for IEC regarding sterilization ranges from doctors and other health personnel to political leaders and couples of all ages. While one important audience is older couples who want no more children,

Childbearing can be dangerous for older women. In El Salvador a mass media campaign encouraged many women who had all the children they wanted to choose voluntary sterilization as a safe, effective way to avoid pregnancy. (World Bank/Martin-Escobal)

most people think about sterilization for several years before making a decision (47, 638). Also, women rarely become sterilized without discussing the issue with their husbands (631). Therefore information about voluntary sterilization should be included in all posters, brochures, and appropriate discussion or counseling on family planning (6). At the same time, it is important to identify subgroups that require special messages, such as religious and political leaders.

Message. Messages vary greatly, depending on the audience. Some potential users want to know only where the service is available, how it can be paid for, and whether it is available on request or only after childbirth. Others need messages that address such specific concerns as fear of adverse physical and sexual side effects or fear of surgery. Terminology is important in sterilization messages (6). In particular, IEC programs need to make clear that voluntary sterilization does not mean castration or loss of femininity. To develop messages that satisfy the audience's needs requires investigation. This can be done through small group discussions, surveys, or other market research. If possible, representatives of the intended audience should help develop messages and should certainly be involved in pretesting materials before they are produced (647).

Media. Research in many family planning programs has found that interpersonal contacts are most effective for influencing attitudes, whereas mass media are best for providing factual information and establishing social legitimacy among large numbers of people (6, 630, 631, 645, 652). Field workers have played a major role in Asian countries in informing women about sterilization (637, 646), whereas in Latin America, the use of *charlas*, or small discussion groups, has been less effective (627, 656). Using multiple channels of information helps to reinforce the message (626, 649). Nonliterate women who received illustrated booklets during oral counseling sessions, for example, gave more correct answers to later questions than women who were counseled orally but did not receive booklets (626, 649). Illustrated booklets on sterilization for clients have been developed in a number of countries, including Bangladesh, Mexico, Nepal, Nigeria, the Philippines, Sri Lanka, and Thailand (665) (see photos, pp. C-137, 142, and 146). Broadcast media, especially radio, reach the largest audiences in most developing countries, but, with the exception of El Salvador, broadcasting on female sterilization has so far been largely confined to Asia. In El Salvador a 1977-78 mass media campaign including radio spots substantially increased the demand for female sterilizations (617, 623). Other experience in Latin America suggests that publicity about sterilization, even where it is hostile or critical, may encourage people to seek services (657). In South Korea, where the mass media are now widely used to promote male and female sterilization, the initial reaction was quite critical but became much more favorable over time (645).

Source. The credibility of information depends heavily on its source. One of the most influential sources of information for women and men considering sterilization is a person already sterilized (6, 47, 635, 638, 639, 644, 646). Satisfied users have served both officially and unofficially to recruit others. Educated people find medical personnel and mass media highly credible, but less educated people tend to rely more on interpersonal contacts (635, 655). Traditional birth attendants and other village women, for example, can be a potent source of information either for or against any method of family planning, especially in rural areas of developing countries where doctors and nurses are scarce (see **Population Reports**, J-22, *Traditional Midwives and Family Planning*, May 1980). In all groups the influence of knowledgeable peers is generally greater than that of outsiders (620, 652).

Since communication about sterilization can be either positive, emphasizing safety, effectiveness, and simplicity, or negative, spreading rumors and fears, programs offering sterilization need to give serious attention to the quality of IEC work. Spending sufficient time and effort to develop good print and broadcast materials about sterilization will be more cost-effective than hasty efforts to develop materials that will not reach, inform, or influence the intended audiences.

Providing High-Quality Services

Not only the availability of voluntary sterilization services and relevant information about sterilization, but also a high quality of service is essential. Maximizing safety and clients' satisfaction is, of course, a paramount goal in itself. In addition, satisfied clients are convincing communicators, whose support will help programs serve more people.

In addition to meeting established medical standards, providing high-quality services requires:

- procedures appropriate to the woman, the available trained personnel, and the facility;
- thorough, accurate, and supportive counseling; and
- careful record-keeping, evaluation, and monitoring.

Choosing Appropriate Methods

Both minilaparotomy and laparoscopy have a role in voluntary sterilization services, but they should be used in appropriate settings. Minilaparotomy can be used in almost any setting. It is safe, simple, and inexpensive. The procedure is easy to learn and can be performed by general practitioners with basic surgical skills. Only inexpen-

Advantages and Disadvantages of Minilaparotomy

Advantages	Disadvantages
1. Easy to learn.	1. Takes slightly longer to perform than laparoscopy, about 10 to 20 minutes on average.
2. Can usually be performed by any doctor with basic surgical training and skills.	2. Difficult in obese women and in women with pelvic scarring and adhesions.
3. Requires only inexpensive instruments, chiefly standard surgical equipment.	3. Leaves small but visible scar.
4. Most complications are minor.	4. Short-term abdominal pain from incision in about half of women.
5. Can be performed after childbirth.	5. Higher rate of wound infections than laparoscopy.

sive equipment, mostly standard surgical instruments, are needed. As a result, minilaparotomy is the preferred method in rural areas, areas with few highly trained doctors, and where the volume of procedures is low. In addition, minilaparotomy is the recommended method for postpartum sterilization (see p. C-145). Minilaparotomy, however, causes pain more often than laparoscopy and leaves a small scar—disadvantages that cause some women to prefer laparoscopy. Minilaparotomy also takes slightly longer.

Laparoscopy is best suited to a more specialized setting, usually large city hospitals. Doctors performing laparoscopy should have experience in abdominal surgery or be specialists in obstetrics and gynecology or in general surgery (587). In addition, laparoscopic equipment is costly—$4,000 to $6,000 (US) for a laparoscopy kit (397). This investment is cost-effective only for facilities with large caseloads. A high volume of procedures also is necessary for doctors to maintain their skills. In Colombia PROFAMILIA recommends that facilities or doctors performing fewer than 10 sterilizations per week use minilaparotomy (583).

In different countries different methods have been emphasized. Indian programs have encouraged laparoscopy (510, 616). In contrast, in Bangladesh minilaparotomy is emphasized because there are few specialists and few training facilities (616). In many countries the appropriate choice may be a mix of the two methods. In Thailand, for example, laparoscopy is offered in cities and high-volume facilities (573). Minilaparotomy is provided elsewhere through a network of decentralized services (44). Focusing on only one method may limit the availability of sterilization. Nepal, for example, at first emphasized laparoscopy. This restricted the delivery of female sterilization to a very small number of trained surgeons. Minilaparotomy is now being introduced to expand services (267).

Assuring Voluntarism

A woman's decision to use voluntary sterilization should be well-informed and freely made. To assure a well-informed, voluntary decision, counseling before the procedure should include information and discussion about:

- the specific surgical procedure to be performed, emphasizing what the woman will experience during and after surgery;
- the permanence of voluntary sterilization;
- the small risk of pregnancy after sterilization;
- other possible risks;
- alternative contraceptive methods, including vasectomy and temporary methods, and where they can be obtained;
- a woman's right to change her mind at any time before the procedure;
- the fact that no penalties will be imposed or any other benefits withheld if a woman decides against sterilization (24, 48, 146, 500, 581, 584, 619).

In most family planning programs, counseling is followed by the signing of an informed consent form—a formal document signed by the client stating that she or he understands the nature of sterilization and has chosen it voluntarily (516). For example, programs offering voluntary sterilization with the assistance of the US Agency for International Development (US AID) are required to obtain the consent of each client either by signature or some other mark after the client has been informed of all the points listed above. Both the client and either the doctor or the doctor's authorized assistant must sign the consent form, and, if the client is nonliterate, a witness of the same sex who speaks the same language as the client must sign the form testifying that the client received an oral explanation. In addition, US AID funds cannot be used to pay potential acceptors of sterilization to induce their acceptance of sterilization or to create a financial incentive for sterilization over another contraceptive method (542).

Advantages and Disadvantages of Laparoscopy

Advantages	Disadvantages
1. Very low complication rate.	1. Risk that complications which do arise may be serious.
2. Can be performed quickly, in about 5 to 15 minutes on average.	2. Usually requires insufflation of abdomen with accompanying risks of postoperative chest and shoulder pain, and, rarely, gas embolism or cardiopulmonary distress.
3. Small incision leaves very small scar.	3. Difficult to learn.
4. Equipment can be used for diagnosis of pelvic disease and infertility, aspiration of ovarian cysts, biopsies, and cutting of adhesions. Also, during sterilization pelvic organs can be checked for signs of disease such as ovarian cancer.	4. Doctor should be trained in obstetrics and gynecology or in abdominal surgery.
5. Less painful than minilaparotomy.	5. Equipment is expensive and can be difficult to maintain and repair.
6. Good for clinics with large numbers of patients.	6. Not recommended after childbirth.

In some situations special care must be taken to ensure that women are able to make carefully considered decisions about sterilization. In particular, women interested in sterilization immediately postpartum should receive counseling early in pregnancy, if possible. The World Federation of Health Agencies for the Advancement of Voluntary Surgical Contraception recommends that a woman should not receive initial counseling nor be asked to give informed consent when she is in labor, under sedation, or during the first 48 hours after delivery (582). In addition, a doctor should not sterilize a women during a cesarean section unless she has been counseled beforehand and has signed a consent form (582). Sometimes women cannot be counseled early in pregnancy, however. If these women choose sterilization, counselors must make sure that they are fully informed and not under stress. Some programs require a waiting period between counseling and undergoing the procedure to give clients time to reconsider their decision (48, 146, 543, 584). In areas where access to sterilization is limited, however, waiting periods could prevent many women from obtaining services (582). To minimize the need for waiting periods and to give couples as long as possible to think about voluntary sterilization and alternatives, family planning workers should mention voluntary sterilization when discussing other methods, even with young couples or those who want more children.

To provide a double-check on the voluntary nature of decisions, recently sterilized women in El Salvador and men and women in Guatemala were interviewed. All the men and women said that they had freely chosen sterilization. While over 90 percent of the 648 women surveyed in El Salvador had discussed sterilization with health workers before the procedure, none thought that these workers were pressuring them to choose sterilization rather than another contraceptive method. In fact, 79 percent of the women cited themselves as the single most important person in their decision to be sterilized; 14 percent cited their husbands; and only 3 percent cited doctors or nurses. For most men and women in the two countries, the decision to be sterilized followed a long period of talking with friends, acquaintances who had been sterilized, and health workers. Almost all of the men and women had been counseled about sterilization before the operation. In El Salvador about 4 percent of the women did not understand, however, that sterilization was permanent (47, 618).

Counseling must be planned and organized as carefully as other aspects of sterilization services. A survey of 39 voluntary sterilization services in 22 countries, conducted by the World Federation, suggests that some sterilization services need additional resources to establish comprehensive counseling programs with fully trained counselors (640). To assure voluntarism and informed consent, counseling requires:

- trained staff specifically responsible for counseling;
- space for counseling that ensures the privacy and comfort of clients;
- established policies on the content and format of counseling, on informed consent, and on referral to other services;
- evaluation of counseling procedures and of individual counselors (640).

Evaluating Services

To assure the high quality of services and to identify possible improvements, evaluation should be built into all voluntary sterilization services. The goals of evaluation are minimizing morbidity and mortality, maximizing clients' satisfaction, and improving efficiency within the context of service delivery goals. Data collected for these purposes can also be used for broader evaluations of program impact on fertility and on maternal and child health. An Expert Committee convened by the World Federation has recommended simple guidelines for monitoring and supervision of voluntary sterilization services (587).

A fundamental requirement for evaluation is a standard system of record-keeping that is conscientiously followed. The minimum information that should be collected is the number of clients served; clients' ages, marital status, parity, and other characteristics; and the medical record of the sterilization and pre- and postdischarge complications (587). Of course, the signed informed consent form also must be kept.

In addition to regular analysis of these records, evaluation methods include direct observation, interviews with clients and personnel, and surveys of clients (296, 372, 555, 662). A combination of approaches is best. In the Dominican Republic, for example, every month client records are tabulated to determine whether the program is providing the anticipated services and whether the age and parity of clients are changing over time. In addition, every year 5 to 10 percent of clients are randomly selected and contacted to confirm medical records, to determine the total cost to the client, and to evaluate pre-operative counseling and client satisfaction (84).

Any reported death attributed to or associated with sterilization should be fully investigated at once so that any harmful practices can be corrected (584, 587). Also, a death can damage the reputation of an entire program and thus deny services to many people (586). In Bangladesh, after several deaths were attributed to vasectomy and female sterilization, teams of evaluators visited medical facilities throughout the country. The major cause of mortality—misuse of anesthesia—was identified. New local anesthesia regimens were introduced, and the number of anesthesia-related complications and deaths dropped markedly (see p. C-144).

A Bangladeshi couple sign the consent form indicating that the woman has been fully informed and has chosen sterilization freely. Counseling is essential to provide full, accurate information and to make sure that consent is voluntary. (Pathfinder Fund)

On another plane, evaluation may be designed to assess the impact of voluntary sterilization within a national family planning program, including effects on both fertility and health (see **Population Reports**, J-27, *Healthier Mothers and Children Through Family Planning*, May-June 1984, and J-29, *The Impact of Family Planning on Fertility*, January-February 1985). One measure of the impact of sterilization on fertility is births averted per woman. Estimates from various countries range from .25 to 2.75 births averted per woman sterilized (344, 393, 472, 643). The overall number of births averted of course depends chiefly on a woman's age at the time of sterilization and the number of years until she reaches menopause. Since women who choose sterilization are usually older and therefore already less fecund than women using temporary contraceptives (393, 472, 564), in a single year the impact of a voluntary sterilization on the birthrate may be less than the impact of a temporary method used by a younger woman (393). Over a number of years, however, the impact of voluntary sterilization may be greater, depending on continuation rates for temporary methods. Another measure of the impact of sterilization is the estimate that sterilization averted 0.54 abortions per woman in South Korea. In other words, one abortion was averted for every two women who chose sterilization (561). In El Salvador it was estimated that sterilizations played a major role in reducing by half the number of hospital admissions for illegal abortion (658).

The impact of voluntary sterilization on women's health is great precisely because the women who choose this method are older and have had more children. Pregnancies after age 35 and after four or more children are high-risk pregnancies (456). Based on data from Bangladesh (622), it has been estimated that avoiding all births after the fourth and limiting childbearing to ages 20 to 34 would reduce maternal mortality rates in developing countries by 12 percent (659). Another study estimated that in Bangladesh one woman's life is saved for every 100 female sterilization procedures performed (208). In Kenya data suggest that, if each sterilization averted 1.5 births, one woman's life would be saved for every 185 female sterilization procedures (654).

Voluntary female sterilization services can have substantial impact on health and fertility rates. As evidence from around the world shows, when trained personnel make minilaparotomy and laparoscopy available in appropriate facilities, this approach to family planning is safe, effective, and in great demand among couples who want no more children. The challenge to health care providers and family planning programs is to meet the growing demand for voluntary female sterilization in ways that conform both to medical standards assuring safety and to ethical standards assuring voluntary and informed individual choice.

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Contraceptive Social Marketing: Lessons from Experience

Editors' Summary. Contraceptive social marketing programs in 13 countries are now selling condoms, pills, and other family planning supplies at subsidized prices through retail stores. More than a decade of experience has shown that, if contraceptive social marketing (CSM) programs are well-managed, well-publicized, and well-adapted to local conditions, they can reach about 5 to 15 percent of all couples of reproductive age. In three countries—Bangladesh, Colombia, and Egypt—these programs serve at least 30 percent of current family planning users. Thus CSM programs can play an important role in meeting family planning needs, along with other family planning programs and conventional commercial sales. In addition, CSM programs are often more cost-effective than other delivery systems.

CSM programs use commercial marketing techniques, mass media, and existing commercial networks to distribute, promote, and sell products. They may be managed by corporations set up for the purpose or by private family planning associations, technical assistance contractors, semi-autonomous organizations, or government agencies. Most CSM programs are supported by donor agencies, primarily the United States Agency for International Development. CSM programs work best when they have continuing government support and help in overcoming procedural constraints, but operate independently in planning, staffing, and day-to-day decision making.

Of the 13 major CSM programs with ongoing sales, 10 are well-established, having sold products for 6 to 16 years. These are in India, Colombia, Sri Lanka, Bangladesh, Jamaica, Thailand, El Salvador, Nepal, Egypt, and Mexico. Three CSM programs—in the Caribbean (including Barbados, St. Vincent, and St. Lucia), Honduras, and Guatemala—started sales in 1984 or 1985. New programs are about to begin in Costa Rica, Nigeria, and Peru. Other programs are being planned in the Dominican Republic, Ghana, India, Indonesia, Kenya, Mexico, Pakistan, and Panama. In the 1970s other CSM programs began but did not continue in Ghana, Indonesia, Kenya, and Tunisia.

Program Achievements

The CSM programs in Bangladesh, Colombia, and Egypt all serve large numbers of couples, who represent a substantial percentage of married women of reproductive age and a large percentage of all family planning users in these countries. Furthermore, they do this at a lower cost than most clinic or community-based programs. The Bangladesh Social Marketing Project sold contraceptives in 1984 providing an estimated 1.3 million couple-years of protection (CYP) against pregnancy (that is, the equivalent of one year of contraception for over 1.3 million couples). It did this at a net cost of $1.75 (US) per CYP (excluding commodities). By rough estimate, 1.3 million CYP would account for over 7 percent of married women of reproductive age, or 41 percent of all couples using contraception in Bangladesh. The Egyptian Family of the Future program provided over 520,000 CYP for 1984, serving an estimated 7 percent of married women of reproductive age, or 30 percent of Egyptian contraceptive users, at a net cost of $5.26 per CYP (excluding commodities). PROFAMILIA in Colombia sold contraceptives providing over 560,000 CYP in 1984, serving over 15 percent of married women of reproductive age, or 31 percent of all contraceptors. Chiefly because of relatively high prices charged to largely middle-class customers, PROFAMILIA sales made an overall profit of $2.18 (US) per CYP in 1984. Any estimates of CYP, population coverage, and cost per CYP involve many unverified assumptions, but these estimates give a rough indication of program coverage and efficiency.

Other programs excel by one standard but are less successful by others. For example, the Nepal Contraceptive Retail Sales program, although it serves a relatively small percentage of couples, has persevered under difficult operating conditions, helped to establish the first advertising and market research firms in the country, and has recently

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become a private company. To varying degrees, all CSM programs have expanded the availability of contraceptives, involved businesses in family planning activities, and used modern business methods. Moreover, CSM programs recover some of their costs. None has yet achieved self-sufficiency while continuing to serve many poor couples, however. Moreover, more research is needed to find out in each country whether CSM programs attract new users of contraception or substitute for conventional commercial sales or clinic services.

Key Elements

For a CSM program, selling contraceptives successfully requires attention to all elements of CSM.

The **potential customers** for most CSM programs are people with a little cash income who prefer to buy contraceptives at a retail store. Thus, in contrast to the public health approach, which tries to reach all those at risk with the same services, CSM programs seek to reach a limited group of customers. Some programs "segment" these potential customers into smaller groups and appeal to the specific interests of each segment.

The chief CSM **products** are condoms and oral contraceptives (OCs). Most programs also sell spermicides, a few sell injectables, and the Egyptian program sells substantial numbers of IUDs. Many programs—including those in Colombia, Bangladesh, and Egypt—have added higher-priced brands of OCs and condoms to appeal to new market segments. Most have increased overall sales.

Prices for CSM products should be set low enough that potential customers can afford them. At the same time, prices should be high enough that buyers think the products are of good quality. Prices also need to be high enough to provide adequate mark-ups for commercial distributors, wholesalers, and retailers. Government price controls may limit flexibility in setting prices.

Market research can supply information about consumers that guides initial planning, monitors the short-term effects of program operations, and evaluates progress toward long-term goals. For example, research in Bangladesh and Nepal found that men preferred CSM ads pointing out that family planning helps make it possible for them to educate their children better.

For **distribution** of CSM products, existing networks of distributors, wholesalers, and retailers are used as much as possible. In countries such as India and Jamaica, these networks deliver affordable contraceptives to many convenient neighborhood stores. In other countries, such as Bangladesh and Nepal, CSM programs have had to set up their own sales forces to distribute and promote adequately to wholesalers and/or retailers. Most distribution networks have served urban areas better than rural. In Bangladesh traditional rural health practitioners have been trained to promote and sell oral contraceptives.

Promotion to consumers, especially through the mass media, is important to build and sustain CSM sales. The Egyptian program spends 37 percent of its operating budget on advertising and other promotion. In contrast, programs in Colombia and Thailand have spent little on paid advertising so far, but they have generated considerable publicity in other ways. CSM programs promote their products not only to potential customers, but also to doctors, pharmacists, and policy-makers, since the attitudes of these decision-makers can make or break a CSM program.

Lessons Learned

Much has been learned from over a decade of contraceptive social marketing. While CSM is regularly promoted by its advocates and occasionally challenged by its critics, in several countries CSM programs clearly have established themselves as the regular source of contraception for many couples. At the same time, it is clear that success does not come easily. Like other family planning programs, CSM programs require good management, adequate funding, strong promotion, and explicit or implicit political support. They must act in harmony with government goals, policies, and procedures. Yet they need to be independent in staffing, setting prices, and making other marketing decisions.

Through social marketing, the skills of the private, commercial sector and the principles of marketing have been applied to increase public awareness of family planning and to reach a large market. Government or donor support has kept the price affordable. Moreover, by emphasizing the role of the user as an independent consumer who makes his or her own choice of products, social marketing has demonstrated new ways to reach and serve the public. **End of Editors' Summary.**

BACKGROUND

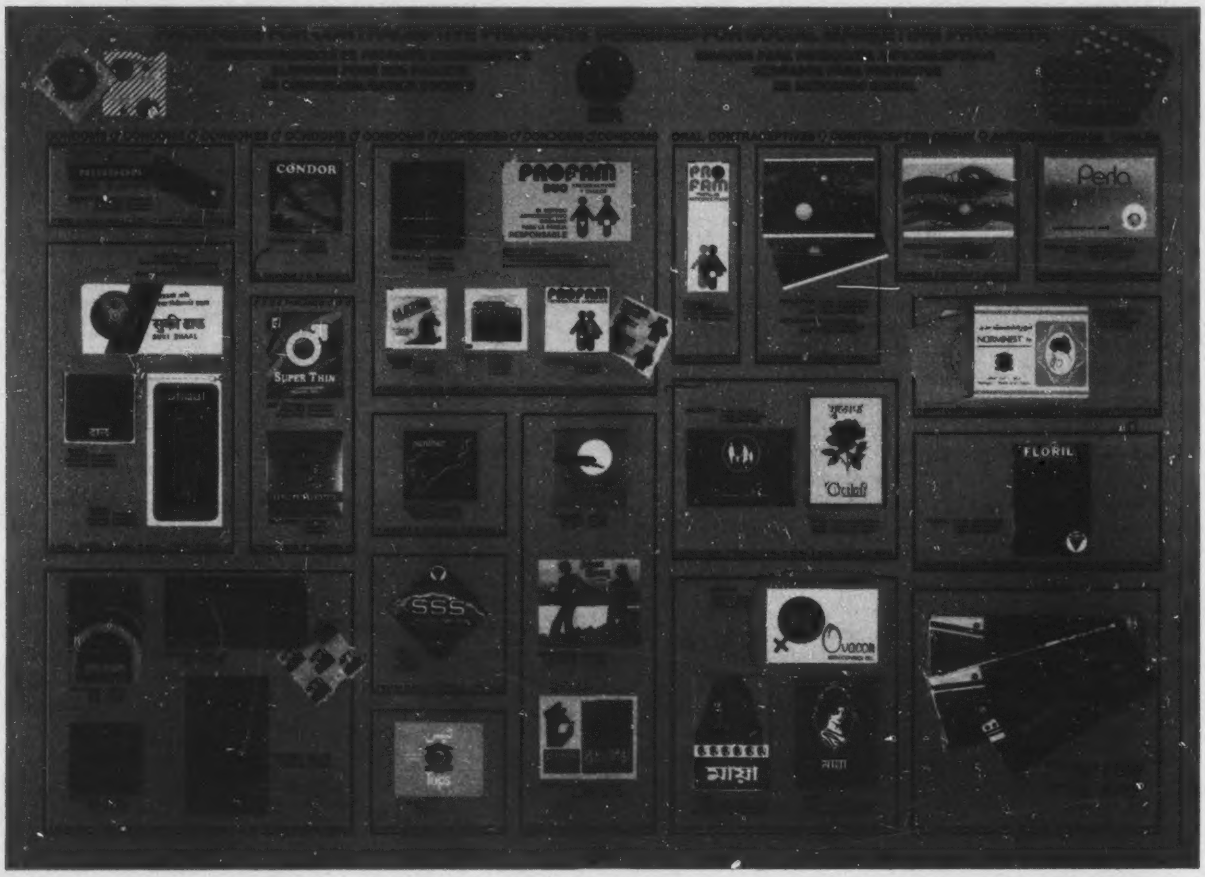
Social marketing was defined more than a decade ago by Philip Kotler and Gerald Zaltman as "the design, implementation, and control of programs calculated to influence the acceptability of a social idea and involving considerations of product planning, pricing, communication, distribution, and marketing research" (116). Most social marketing efforts have actually been "social advertising," such as campaigns to persuade people to stop smoking, carry out breast self-examination, or immunize their children (74). Some argue, however, that social marketing must involve selling a product, since otherwise marketing skills are not fully involved. Social marketing in developing countries often involves selling contraceptives at subsidized prices through commercial networks.

Contraceptive social marketing (CSM) has two basic goals:

- to make contraceptives more widely available, and
- to recover some program costs.

Of course, all family planning programs seek to make contraceptives more widely available. What is unique to CSM is the means: CSM tries to use existing networks for distribution and supply of commodities—the commercial distributors, wholesalers, and retailers that operate in virtually every country, providing every-day supplies to those with money to spend. In contrast, other family planning programs operate through health facilities and through community-based programs, which typically set up and operate their own distribution networks—a slow and expensive process still underway in some countries. An important rationale for CSM is that commercial distribution networks can make contraceptives available in places that other family planning programs do not reach. Even where services are available in clinics, retail outlets are more convenient. They far outnumber medical facilities, are usually open longer hours, and are regularly visited by consumers buying a variety of other products.

In addition, CSM appeals to people who would rather buy contraceptives in a retail outlet than receive them as patients in clinics. Women and especially men may prefer retail outlets not only for convenience, but also because they are embarrassed or feel out of place in a clinic or because they think that a stigma is attached to using free services. At the same time, CSM appeals to people who cannot afford to pay the full commercial price for contraceptives. In some developing countries the full price is beyond the reach of all but a few. For instance, in Bangladesh in 1980 a one-year supply of oral contraceptives (OCs) purchased at full commercial price cost over 16 percent of the average annual per capita income. In Egypt



Social marketing programs around the world have sold contraceptives in packages carrying a variety of themes and brand names. This full-color poster (70 × 100 cm) was produced by The Johns Hopkins University/Population Communication Services. It is available free of charge to family planning professionals working in developing countries and for $5 (US) to others. Write: Media/Materials Collection, Population Communication Services, The Johns Hopkins University, 624 North Broadway, Baltimore, Maryland 21205, USA.

in 1980 a one-year supply of condoms purchased at full commercial price cost about 5 percent of the average annual per capita income (181).

CSM can recover some of program costs. Because products are sold rather than given away, part of the cost of providing supplies is recovered. Sales revenue is usually enough to cover some program expenses and to provide a small profit for the independent retailers and, where involved, wholesalers and distributors who handle the products.

New interest is focusing on CSM as family planning administrators and policy-makers become increasingly aware of the cost entailed in the growth of family planning programs. In 1980 the total public expenditure on family planning programs in developing countries excluding China was an estimated $1 billion (US). To stabilize the size of the world's population, the level of contraceptive use would have to be four times greater than the current level. Thus the annual cost of family planning programs to achieve such a goal would be at least $4 billion. Inflation and the increasing number of reproductive-age couples over the next few decades will make the ultimate annual cost even higher (244). Therefore available resources must be used as efficiently as possible. By selling contraceptives at a price many people are willing and able to pay, CSM ensures that couples contribute what they can towards their own family planning needs.

History

Contraceptives have been sold commercially in the West since the 19th century. The first national effort to augment sales of contraceptives by subsidizing their price—the first contraceptive social marketing—started in 1967 with the *Nirodh* condom program in India. The program was designed and implemented with assistance from the Ford Foundation. In 1973 CSM programs started in Colombia under PROFAMILIA, a member of the International Planned Parenthood Federation (IPPF), and in Sri Lanka with funding from IPPF and technical assistance from Population Services International (PSI).

Today there are 13 CSM programs selling products. In addition to those in India, Colombia, and Sri Lanka, programs operate in Bangladesh, Nepal, Egypt, Honduras, the Caribbean, Jamaica, El Salvador, Mexico, Thailand, and Guatemala. The programs in Bangladesh, Nepal, Egypt, Honduras, the Caribbean, and Guatemala receive support primarily from the United States Agency for International Development (US AID), which also provides some support to the programs in Jamaica, El Salvador, and Thailand. The Mexican PROFAM program received US AID support until 1981. The programs in India, Colombia, and Sri Lanka have not received direct US AID support. (See Table 1, pp. J-806–808.)

Four new programs are preparing to start sales. They are in Costa Rica, India (a new oral contraceptives sales program), Nigeria, and Peru (see Table 2, p. J-809). The program in Ecuador is awaiting a government decision on pricing. Other programs are planned in Kenya, Pakistan, Panama, and Mexico, among others. All are receiving or will receive support from US AID. (See box, p. J-778.)

A number of social marketing programs have ended. A program in Tunisia stopped in 1976 before sales could start, and a Ghanaian program ended in 1980 after less than two years of sales. These two programs were halted mainly because of government objections and restrictions as well as management problems. Other programs, which started in the mid-1970s but have since stopped sales, include those in Indonesia, Morocco, the Philippines, South Korea, and a pilot project in Kenya.

MANAGEMENT

The most fundamental management issue in any social marketing project is control: what organizations and individuals will be in charge? The management of most social marketing programs represents a compromise between government control and private, marketing-oriented operation (13). Ongoing CSM projects generally fit five organizational models, although specific management structures are different for each program. The programs are:

- managed by family planning associations (FPAs) (Colombia, Sri Lanka, El Salvador, Honduras),
- managed by private-sector organizations established specifically for the purpose (Nepal, Mexico, Thailand, Guatemala),
- managed by semi-autonomous or quasi-governmental agencies (Bangladesh, Egypt),
- managed by government agencies (India, Jamaica),
- managed by an established commercial distributor (the Caribbean).

CSM programs funded by US AID generally have begun with full financial support under the management of US technical contractors. As programs mature, technical assistance usually is reduced, and local management of one type or another takes over.

Of the 13 ongoing CSM programs, 4 are managed by FPAs. The main advantage of FPA management is that FPAs have an established position as in-country providers of contraceptives. Among the disadvantages are that they may lack a single director responsible for decision-making, some are not market-oriented, and usually FPAs do not pay salaries competitive with those of private industry. Also, FPAs are often more familiar with promoting family planning in general than individual contraceptive brands (183, 263).

A medical shop in Nepal displays ads for the products of the Contraceptive Retail Sales program. The program is run by an independent, nonprofit company, which took over from a semi-autonomous group in 1983. (Courtesy of *Social Marketing Forum*)

The program in Colombia is managed by PROFAMILIA, the Colombian Association for Family Welfare, a private, nonprofit family planning association affiliated with IPPF (78, 145). Within PROFAMILIA the fairly autonomous social marketing division is supervised by a marketing director. Reporting to the director are a sales manager and a department of marketing services that handles invoicing, statistics, and computer services.

The Sri Lankan Contraceptive Retail Sales Program, which began in 1973 with assistance from PSI, is now managed by the Family Planning Association of Sri Lanka. A management board oversees the program and is responsible to the FPA. Management consists of an executive director, a marketing director, a marketing manager, and eight marketing officers (78).

The El Salvador Social Marketing Project is managed by the Asociación Demográfica Salvadoreña. Until 1980 it received technical assistance from Development Associates, a US technical contractor. Management is organized along functional lines, with managers in charge of sales, packaging, and vending machine operations (57, 78, 117). The Honduran program is managed by the Asociación Hondureña de Planificación de la Familia (ASHONPLAFA) (87, 212).

In Nepal, Mexico, Thailand, and Guatemala, private organizations run the CSM programs. The Nepal CSM program began in 1976 under the management of a semi-autonomous group and with technical support from Westinghouse Health Systems (now Westinghouse Public Applied Systems). It operated under the direction of the Nepal Ministry of Health through an advisory board with members from various government and private organizations. In 1983 the Westinghouse contract came to an end. As planned, the government relinquished its authority, and the program was incorporated as an independent, nonprofit organization (3, 56, 102, 216, 259).

Programs in Mexico and Thailand are managed by private nonprofit organizations with for-profit components. The Mexican PROFAM program—formally Promotora de Planificación Familiar, A.C.—started in 1977 with technical assistance from PSI and strong government support. In 1981, however, after a change in political administration, all support was dropped. PROFAM now distributes some contraceptives through its nonprofit division, which is supported by revenue from a for-profit division marketing both contraceptives and noncontraceptive products (221, 222). The Thai program is one of many projects of the Population and Community Development Association (PDA), a tax-exempt nonprofit organization that manages community development and public health activities including family planning and parasite control projects (152). PDA receives financial support from the Thai government, donor agencies, and the Population and Development Corporation (PDC), a tax-paying, nonprofit, public service organization founded by Mechai Viravaidya and others. PDC raises money to support nonprofit organizations such as PDA by selling medical services (primarily through clinics and mobile vans), by selling liquid gas, by running a restaurant that serves lunch to PDA staff and the public, and through various real estate and business investments (17, 78, 152).

In Bangladesh, where rivers serve as highways, the Social Marketing Project promotes its products from boats. A board of directors including government representatives gives the Project general guidance, but day-to-day decisions are made by the staff. (PSI)

The Guatemalan program, which started selling products in 1985, is a for-profit operation managed by Importadora de Productos Farmaceuticos S.A. (IPROFASA), an independent off-shoot of the Asociación Pro-Bienestar de la Familia de Guatemala (APROFAM), a family planning association.

Two of the largest CSM programs, in Egypt and Bangladesh, are run by semi-autonomous organizations. These are private organizations but accountable to a board of directors that includes government officials. Decisive management has strengthened both programs. In 1984 Family of the Future in Egypt became the first CSM program to convert from functional management organization to product-oriented management, in which different managers for different products are responsible for setting objectives and developing, implementing, monitoring, and adapting marketing strategies (78, 124). In Bangladesh, the Social Marketing Project director functions as chief of operations. The director is assisted by a representative of PSI, who acts as liaison between the program and the donor agency, US AID. Departmental managers are in charge of marketing, development, national sales, and finance and administration (186). Management is accountable to a 9-member Project Council, which periodically evaluates overall program operation but is not involved in day-to-day decisions. The council consists of four government officials, three members from the private sector, and one representative each from US AID and PSI (55).

Only two ongoing programs are directly managed by governments—the *Nirodh* Social Marketing Program in India and the Jamaican Contraceptive Retail Sales Program. The Indian program is directed by the Ministry of Health and Family Welfare. The Jamaican program began with assistance from Westinghouse but was transferred to government management in 1977 (13). It is now directed by the National Family Planning Board in the Ministry of Health and Environmental Control (78, 214). Both programs are run by civil servants but have hired commercial firms to perform major tasks such as advertising, packaging, and distribution.

There are advantages and disadvantages to government management. On one hand, government influence can encourage commercial firms to cooperate. In India the government persuaded several large commercial firms to

New CSM Programs to Try New Approaches

At least half a dozen CSM programs probably will start in the next few years, most with assistance from the US-based Social Marketing for Change (SOMARC). SOMARC is a 5-year project of the Futures Group. It began in 1985 and is funded by US AID. In addition to helping develop and implement new CSM programs, SOMARC aims to gather information about CSM and train CSM personnel in marketing techniques.

Most of the new programs will actively involve private-sector companies in CSM. At least three will help distributors make established products available to lower-income groups instead of selling donated products. For instance, in the Dominican Republic the Asociación Dominicana Pro-Bienestar de la Familia may work with the pharmaceutical manufacturer Schering AG to promote, distribute, and sell a popular brand of OCs at half the commercial price (150). In Panama SOMARC may provide generic advertising and promotional support to commercial distributors in marketing their current contraceptive products to lower-income couples. In Brazil a pilot project may assist a commercial distributor in marketing an established OC brand to lower-income women.

In Nigeria, Sterling Products (Nigeria, Ltd.), a major pharmaceutical distributor, will supply US AID-donated condoms and OCs to its regular retail outlets, beginning in 11 states in Fall 1985. Sterling Products also will develop promotion, which is expected to include generic radio, TV, and newspaper ads. Family Planning International Assistance is providing technical assistance (42).

New CSM programs also are being planned in Mexico, Indonesia, Ghana, and Kenya. In Mexico the new program will be implemented through the Ministry of Health. Contraceptives may be sold through the extensive system of government-subsidized CONASUPO food stores. In Ghana CSM is being reintroduced. The program, which will be implemented through a local distribution firm, plans to sell the same *Panther* condom and *Floril* OCs brands used in the earlier program in addition to a low-dose OC and a very thin condom (230).

distribute *Nirodh* condoms in rural areas. On the other hand, government bureaucracies tend to move slowly and cautiously. They cannot react quickly to changing market conditions. Authority is fragmented. Often officials far removed from the operations of the CSM program have to approve budgets, budget changes, personnel, and contracting decisions. Also, government personnel rarely possess marketing skills and experience, and civil service salaries are not high enough to attract people with such skills. Furthermore, governments cannot pay commissions to salesmen (13, 183).

The Caribbean CSM program is the only one currently managed by a commercial distributor. At first the Barbados Family Planning Association oversaw the program, which covers the island nations of Barbados, St. Vincent, and St. Lucia. A local manager directed program operations. In 1985 management responsibility was transferred to the commercial distributor to improve efficiency (76, 223).

Relationship Between CSM Programs and Government

Social marketing experts argue that CSM programs work best when day-to-day decisions can be made and implemented without government involvement. To detect and respond quickly to changes in the demand for products, programs require flexible management systems with clear central authority (282). In contrast, government bureaucracies are designed to prevent precipitous action. Because CSM programs require substantial initial funding and are highly visible, especially if they vigorously promote their products, governments are usually reluctant to allow them complete independence (13, 194).

One means of striking the balance between independence of management and government control is the advisory board such as those in Egypt and Bangladesh. In addition to providing overall guidance without interfering in daily decisions, the board can help coordinate CSM activities with those of other family planning organizations and agencies (266).

Working closely with government is especially important for a program in its early stages, when the responsibilities of funding agencies, technical contractors, government agencies, and the managing organization are being defined. Program managers must take into account not only the government's broad interests and concerns in the program, but also the many ways that government authority affects CSM programs: product registration requirements, price controls, advertising restrictions, and labeling and packaging regulations, among others. Also, knowing who to deal with in government is crucial to avoid delays in program start-up. Technical assistance contractors can play

Lessons Learned About Management

- CSM management structures must fit local circumstances. No one structure is appropriate to all countries.
- Management, whether in government, FPAs, or separate organizations, should follow basic marketing principles and respond rapidly to changing market conditions.
- All CSM programs, regardless of organizational structure, should communicate and coordinate with relevant government agencies.
- Especially in the formative stages of CSM programs, technical assistance contractors are an important link among host governments, donor agencies, and CSM management.
- CSM programs should recruit and train qualified managers and provide incentives for good performance.

a key role by smoothing relationships between program and government officials and by coordinating communication with funding agencies (185, 263).

Sometimes communication with government is needed just to prevent embarrassment or confusion. In Honduras in 1985 the CSM program chose the name *Guardian* for its condoms. While the choice was based on careful market research in the urban areas where the condoms are sold, the name was not discussed with government officials. Packaging and promotion had been prepared before it was discovered that "guardian" is the name used for rural health workers in the Ministry of Health (191).

Recruiting, Training, and Retaining Managers

As in all marketing enterprises, stable and competent management is essential to an effective CSM program. The programs in Bangladesh and Egypt, for example, have had highly trained top-level management from the beginning, and, when lower-level managers have left, able replacements have been found quickly. In many programs, however, rapid turnover has disrupted program operation. Common reasons that CSM managers leave include low pay, job frustration, and insecurity due to the dependence of CSM programs on government and donor agency support (47, 231).

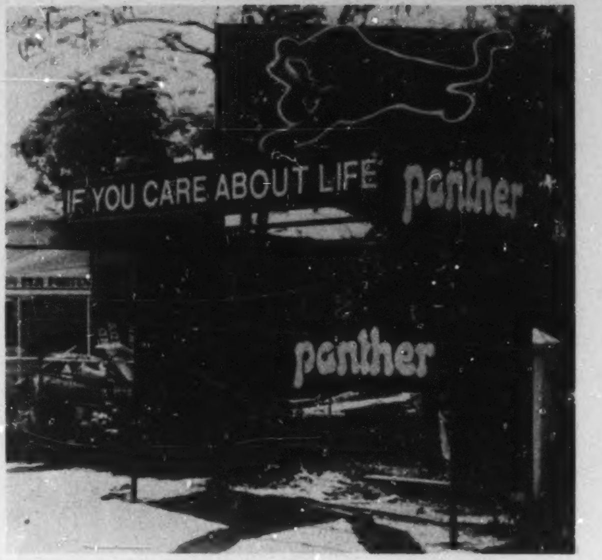
A partial solution to the problem of management turnover is to mount ongoing recruiting and training efforts that will ensure a steady flow of talent into the management ranks. Social Marketing for Change (SOMARC), a US AID funded project administered by the Futures Group, is organizing training workshops in Latin America and the Caribbean, Asia, and Africa for all levels of CSM management (238).

POTENTIAL CUSTOMERS

CSM programs, like other marketing efforts, seek to satisfy consumers. Ideally, they do so by identifying potential customers, learning about them, and then tailoring a marketing strategy to their particular needs and habits (282).

In most CSM programs, the choice of potential customers is a policy decision made by supporting agencies and management. Like other marketers, however, CSM programs look for consumers who are not adequately served by existing products and distribution systems. Thus CSM efforts usually focus on low-income couples with access to retail outlets. This broad population of potential customers may then be segmented into smaller groups on various bases. Specific marketing strategies may be designed to reach each of these groups. This approach follows the marketing principle that the more specifically products and promotions appeal to a well-defined group of consumers, the more likely those consumers are to buy the products.

In addition to potential customers, CSM programs must take into account other audiences, including retailers, distributors, health-care providers, and influential community figures such as political or religious leaders. The particular concerns of these audiences are discussed in "Distribution" (pp. J-791–793) and "Promotion" (pp. J-793–797).



Bus stop shelters in Jamaica advertise *Panther* condoms. The Jamaican social marketing program promotes especially to young couples and men of all ages. (Courtesy of *Social Marketing Forum*)

How Many Potential Customers?

Once the potential customers have been broadly identified, a program must estimate how many it can expect to serve. This estimate usually involves demographic and socioeconomic statistics from national surveys and censuses. For instance, programs might estimate the number of married couples of reproductive age who:

- live in the program area,
- are not already using effective contraception,
- want to space births or end childbearing,
- live in households with incomes in a certain range, and
- have access to retail outlets.

Most programs then set goals for reaching a specific proportion of potential customers by a certain year (83, 164).

A study carried out for the OC program being planned in India concluded that the program could expect from 1.6 to 2.0 million customers by 1988. The calculation was made as follows: In 1982 there were 16 million at-risk urban couples with access to pharmacies, where OCs will be sold. Of these, 50 to 60 percent were literate (the program will be aimed at literate women) and had enough income to pay for OCs. Thus the overall market consists of 8 to 10 million couples. Assuming that the program will eventually sell to 20 percent of the market, it can plan on serving 1.6 to 2 million customers, or selling 21 to 26 million cycles of OCs annually when fully operational (70).

Market Segmentation

The population of potential customers can be segmented in various ways, and products can then be marketed specifically to each segment. Virtually all CSM programs promote different products to different groups. The major target market for condoms is men, although in some countries—Thailand and Honduras, for instance—condoms are marketed to women as well in order to enhance the social acceptability of the method. The major target market for OCs generally is young women with one or two children, although in Muslim countries—Bangladesh, for instance—OCs are often bought by men. The Egyptian program identified a specific target market when it introduced low-dose OCs in 1983: over one million urban married women of reproductive age who had never used the pill or had used the pill for no more than three months (91). In many programs the target market for foaming tablets includes women who have coitus infrequently or are seeking a method free of any risk of side effects, such as women who are breast-feeding (63, 118).

National priorities may be a basis for further segmentation. In Jamaica and the Caribbean, pregnancy rates among women under age 20 are high. Therefore young adults of fertile age have been selected as a major market. Products are sold in shops frequented by young people; pharmacists have been urged not to discourage young men and women from buying contraceptives; and ads have been directed at young people. Another major target market in these regions is men. Therefore ads emphasize male responsibility in family planning.

In some programs segmentation follows geographic or cultural lines. For example, in Guatemala marketing approaches must differ for the Ladino and Indian populations because of their different languages and cultural, economic, and educational characteristics (142).

Egypt's Family of the Future program, having learned much about potential customers through market research (see pp. J-788–791), has segmented the market even further—according to education, attitudes, buying habits, experience with contraception, and other factors. For instance, one target group for *Amaan* foaming tablets is women who have coitus infrequently because their husbands work outside Egypt. Ads for *Amaan* emphasize that the method is used only when needed. Promotions for the low-dose *Norminest Fe* OCs specifically address women who are worried about side effects of OCs. Ads point out that the low-dose pill causes few side effects and that each cycle includes seven iron tablets (136).

Assessing CSM Customers in Ongoing Programs

Survey or qualitative research is sometimes used to assess whether potential customers are being adequately reached (see pp. J-789–790). A 1981 survey in Bangladesh, for instance, found that the typical buyer of *Raja* condoms was a 27-year-old man who had been married four years, had two or three children, earned less than $25 (US) per month, worked outside, and was functionally nonliterate. These findings showed that the program was achieving its goal of providing contraceptives to poor, nonliterate couples. The survey was carried out mostly in urban and semi-urban areas, however, and so could not assess progress in reaching rural couples (148, 186).

Lessons Learned About Potential Customers

- A CSM program should carefully estimate the number and characteristics of customers that it can expect to serve.
- Market research to learn as much as possible about potential customers can be helpful.
- What is learned about different groups or segments of customers can be used to develop appropriate marketing approaches for each group.
- Ongoing programs should analyze their customers periodically to assess whether marketing strategies should be changed.

For mature programs, assessing CSM customers is especially important when new marketing techniques are being considered or when sales are not growing. For instance, the Jamaican program recently commissioned a market research company to assess the target market. The Jamaican program hopes to increase prices of established brands and may add a new condom brand and/or low-dose OC in late 1985.

The Jamaican research, carried out in 1984, involved discussions with groups of men and women, interviews with physicians and retailers, and a survey of over 1,000 contraceptive users and potential users (129, 130, 131, 132, 133). Major findings were: (1) Consumers knew about family planning and CSM methods and had positive attitudes about family planning. Nonetheless, many expressed the traditional belief that childbearing was predestined and nothing really could be done to plan it. (2) Despite years of promotion stressing the opposite, many men still associated condoms with extramarital affairs and seldom used them with their wives. (3) Women were still worried about the health effects of OCs. Most were embarrassed to ask retailers for information and preferred to go to physicians with their questions. The researchers recommended that promotion, which has been intermittant since the early 1980s, should directly address traditional attitudes about childbearing and fears about OCs. The program also should inform physicians and retailers about program methods (129, 130, 131, 132, 133).

PRODUCTS

The three contraceptives most commonly sold by CSM programs are condoms, oral contraceptives (OCs), and spermicides—usually foaming tablets. Condoms are sold by all 13 ongoing programs. OCs are sold in all ongoing programs except India's. In six—the Caribbean, Colombia, El Salvador, Honduras, Jamaica, and Thailand—more customers are protected by OCs than by condoms. Eight programs sell small amounts of foaming tablets or other spermicides. (See Figures 1-10, pp. J-798–805.) Most of the newer programs began by selling condoms and/or OCs and plan to add foaming tablets later (see Tables 1 and 2, pp. J-806–809).

A few programs sell other contraceptives as well. The Family of the Future program in Egypt sells intrauterine devices (IUDs) through pharmacies and doctors. IUDs provide more contraceptive protection than all other products sold. The Mexican PROFAM program also sells IUDs, although at commercial, not subsidized prices. Four programs—in Colombia, Bangladesh, Mexico, and Egypt—have made various arrangements to sell injectable contraceptives now or soon.

Condoms

For several reasons, all CSM programs sell condoms: (1) Condoms require no medical supervision and generally do not have to be registered with the government as a pharmaceutical product. (2) They are usually bought by men, who in many countries handle the money and do most of the shopping. (3) Correct use requires little instruction. (4) They can usually be advertised by brand name.

The major problem with condoms is a poor image. In many countries people associate condoms with prostitution and illicit sex. Therefore married couples are embarrassed to use them. Also, some couples complain that condoms reduce sensation during coitus. Some users think that condoms break easily. In rural areas disposal can be a problem. To counteract the image of an illicit product, some condom promotion emphasizes that responsible married couples use condoms, and in some programs condom promotions appeal specifically to married women. Also, selling only carefully tested condoms and including lubricated condoms in the product line can help to build the image of a high-quality product that does not break during use or reduce sexual pleasure.

Although good-quality condoms can remain in good condition for at least five years, condoms that are stored in warm, humid conditions can deteriorate quickly. Therefore cool, dry warehouses are needed together with an efficient logistics system that minimizes storage time (see **Population Reports,** *Update on Condoms—Products, Protection, Promotion*, H-6, September-October 1982). In Bangladesh, for instance, sales of *Raja* condoms are now so brisk that none is stored long enough to risk deterioration, but several years ago the quality of some condoms stored by the government for free distribution was questioned (146).

Oral Contraceptives

Almost all CSM programs sell oral contraceptives because: (1) OCs are the most popular reversible family planning method in most countries, and thus high-volume sales can be expected. (2) They are very effective and easy to use. (3) Basic information about their use is easy to communicate— "take one pill every day." (4) They do not require a direct medical procedure, such as IUDs do.

For CSM programs a major constraint to building OC sales is the minor side effects that some women experience, including nausea, weight gain, or slight dizziness. These effects usually disappear after two or three months of use. Thus CSM advertising in Bangladesh, Honduras, and Nepal has emphasized that the minor side effects stop after a short time (see p. J-795). OCs also increase the risk of infrequent but serious circulatory system diseases, mainly in women over 35 who smoke. At the same time, however, OCs relieve menstrual problems and reduce the risk of developing some reproductive cancers (see **Population Reports**, *Oral Contraceptives in the 1980s*, A-6, May-June 1982).

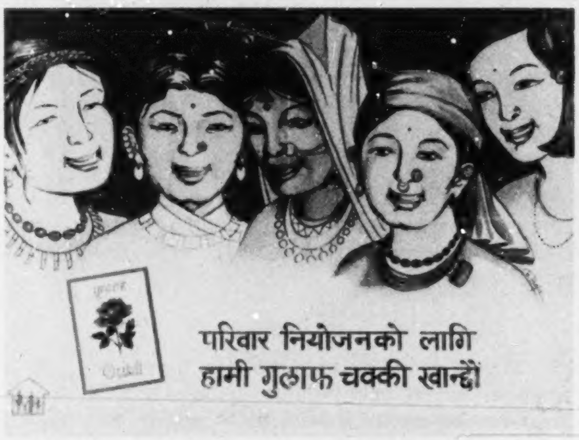
Most countries classify OCs as a pharmaceutical agent, which must be registered with the government before it can be sold. Registering a product takes time. For example, in Honduras it took two years to register OCs for social marketing.

In addition to product registration, some countries require doctors' prescriptions for women who use OCs. Twelve of the 13 ongoing CSM programs sell OCs. In four of these countries, OCs are available by prescription only. Even though prescription requirements often are not enforced, they can limit OC sales to pharmacies, thus restricting availability, especially in rural areas. In two of the remaining eight countries—Honduras and Mexico—prescriptions are not required, but OCs can be purchased only in pharmacies (see Table 1).

Many experts argue that prescription requirements for OCs should be dropped. They note that the health risks of pregnancy are generally much greater than the risks of OCs (113, 156, 157, 187). Experts point out that anyone can identify the major risk factors for OC use—smoking and older age (168, 169, 197). The major physical signs of high risk—obesity and high blood pressure—also are fairly easy to detect (156). A recent study in Mexico found that OC users were generally healthier than women who had never used OCs. This suggests some self-screening for pill use. Moreover, all OC users were equally healthy, whether they obtained their supplies from pharmacies, from doctors, or from a community-based distribution program (61).

CSM programs have taken a number of measures to provide more information on OCs to users and retailers. In many programs customers can pick up free pamphlets and brochures at retail outlets. In Bangladesh, Colombia, Egypt, Honduras, and Nepal, CSM sales people instruct retailers about side effects and about high-risk groups who should not use OCs. In broadcast ads the Egyptian program promotes OCs to "active and healthy women" (136).

Even where OCs do not require prescriptions, CSM programs have found that they must work with the medical community. Before using OCs and during the first few months of use, women often seek advice and assurance from physicians, pharmacists, or traditional practitioners



A poster from the Nepal Contraceptive Retail Sales program takes note of the country's many ethnic groups: "Regardless of who you are—regardless of which ethnic group—the pill is good for you."

(133, 186). If these practitioners are not informed about CSM programs, or if they are skeptical about the products sold, they can easily dissuade women from using the method (see p. J-796).

Spermicides

Spermicides, especially foaming tablets, are sold by most CSM programs because: (1) They do not require prescriptions. (2) They are safe. (3) They are convenient for couples who have coitus infrequently. (4) They are easy to store and distribute. Eight of the 13 ongoing programs sell or plan to sell spermicides. Except in Colombia, foaming tablets are the only spermicide sold. (See Table 1.)

The major problem with foaming tablets and other spermicides is that they are inconvenient to use and often fail, frequently because they are used improperly or not at all (see **Population Reports**, *New Developments in Vaginal Contraception*, H-7, January-February 1984). To deal with these problems, many CSM programs include in packages easy-to-follow pictorial instructions emphasizing the importance of proper use. These instructions remind the user to place a tablet in her vagina at least five minutes before coitus so that it can dissolve completely. Instructions also make clear that, once the tablet has dissolved, coitus must take place within about 30 minutes and that women should not douche for several hours after coitus. The instructions also point out that the warm sensation caused by the dissolving tablet is normal and brief.

Spermicide sales have been much lower than sales of other methods (see Figures 2, 4, 6–10, pp. J-799–803). The reasons for this may be lack of consumers' familiarity with spermicides as well as a preference for other methods. Nonetheless, in most established CSM programs spermicide sales have been stable, suggesting that they are filling a need for some couples.

IUDs

Egypt's Family of the Future program is the only CSM program to sell IUDs at subsidized prices. IUDs are the major method sold, providing about twice as much protection against pregnancy as all the other methods. IUDs sell well in part because in urban areas, where the program is most active, there are many private physicians who can insert IUDs. The IUDs—*Copper-T* and *Gravigard* (Cu-7)—are sold to women in pharmacies or by doctors. More than 600,000 were distributed between 1979 and 1984 (see Figure 9). The Mexican PROFAM program also sells IUDs to physicians, but at commercial prices.

A major factor in selling IUDs is that they require health care support for insertion, follow-up, and removal. The Egyptian program has set up five model clinics that train physicians to insert IUDs as well as provide general family planning services (64).

Injectables

Injectables are sold through the Mexican and Colombian programs and are being test-marketed in Bangladesh and Egypt. In 1984 the Mexican PROFAM program began offering a monthly injectable contraceptive, *Patector*, consisting of dihydroxyprogesterone acetophenide 150 mg and estradiol enanthate 10 mg (51). A number of commercial brands of injectable contraceptives have long been available without prescription in Mexican pharmacies (120). PROFAM began offering the method because market research showed that injectable contraceptives are popular in Mexico. People know that they are highly effective and consider them safer than IUDs or OCs (5). In Colombia a few hundred 3-month injections of *Noristerat* have been sold at PROFAMILIA clinic counters each year since 1982. The Bangladesh program began test-marketing *Noristerat* through clinics in 1985. The Egyptian program began test-marketing the 3-month injectable *Depo-Provera* in 1985. Supplies of injectables are purchased from commercial sources or supplied by donors other than US AID, which does not supply injectables.

Choice of Methods and Brands

Except for the *Nirodh* condom program in India, all ongoing CSM programs sell more than one contraceptive method (see Table 1). The reason for this is that the wider the choice of products, the more potential customers can be reached.

Not only different methods, but also different brands increase total sales by appealing to more than one segment of potential customers. Most of the CSM programs started in the 1970s now offer more than one brand of condom and/or OCs (see Table 1). Even the *Nirodh* program, which for 15 years sold only a plain, unlubricated condom, began offering a high-quality, lubricated condom—*Nirodh Deluxe*—in 1984. One reason for the large volume of sales in the Colombia program may be the number of brands it sells. In 1984 PROFAMILIA sold seven brands of OCs, seven brands of condoms, four brands of vaginal contraceptives, and one injectable. PROFAMILIA can obtain these different brands because it buys many products directly from manufacturers in addition to receiving some donated products. In 1981 the Egyptian program began

In Colombia a green flag flies where PROFAMILIA contraceptives are sold—in urban pharmacies supplied by independent distributors; in small shops and depots supplied by *instructoras*; and also at counters in family planning clinics. (Mary Worstell) offering the *Gravigard* (Cu-7) IUD in addition to the *Copper-T* IUD. Many physicians preferred the *Gravigard,* which is widely advertised in medical journals. Sales of both brands have increased steadily. In 1984 the *Gravigard* accounted for about 30 percent of IUDs sold by the program.

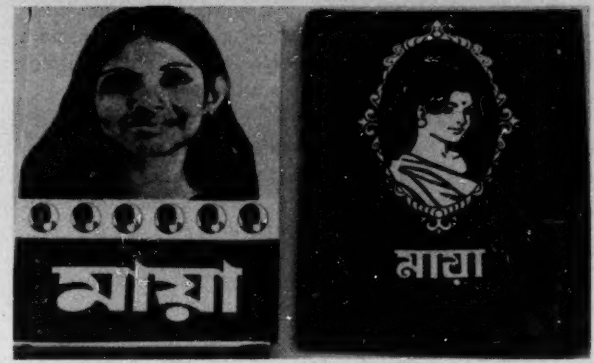
Most of the new brands successfully introduced have been higher priced products than the original brands. The new brands often are sold in a limited number of specialty shops or pharmacies and are promoted as "special, high-quality" products. In 1981 the Bangladesh program introduced a higher priced OC, the low-dose *Ovacon,* to appeal to women who may have had side effects with *Maya* and to those who wanted an OC with a higher-quality, more "medical" image. A new distribution strategy was developed to involve traditional rural health practitioners (see p. J-796). After the introduction of *Ovacon,* overall OC sales, which had dropped to about 700,000 cycles in 1979, rose to over 2,200,000 cycles in 1984. *Ovacon* accounted for over 40 percent of 1984 OC sales (see Figure 4, p. J-800). In addition, average revenue per sale increased because the new product had a higher price. The programs in Sri Lanka and Mexico, striving for financial self-sufficiency, have added higher-priced brands and dropped cheaper brands altogether in an attempt to increase revenue. While revenue may have grown, the volume of sales has dropped (see Figures 2 and 10, pp. J-799, J-803). Even where a new product increases overall sales, it is difficult to know to what extent additional sales are to new users or to customers switching from commercially priced brands. In addition, manufacturers and distributors of other contraceptives may object strongly to a CSM product that directly competes with their products.

In contrast to experience with higher priced new brands, the Nepal Contraceptive Retail Sales program had disappointing results when a lower-priced condom, *Suki Dhaal,* was added in 1981 to appeal to very poor couples. Sales were too low to justify the cost of packaging and distributing the second condom, and *Suki Dhaal* was dropped in 1984 (56).

Packaging

Most CSM programs using donated contraceptives add outer packaging to the products before selling them. In addition to helping protect the product, distinctive packaging attracts attention, promotes the product, and differentiates it from other products. Before products are launched, research often seeks to determine (1) what names, colors, and logos most appeal to potential customers, (2) what type of packaging is preferred, (3) with condoms and tablets, how many units per package are preferred, (4) what technical information must be printed on packages, and (5) what type of package insert is needed (154).

Names, logos, and packaging are important to product image. Such research strategies as group discussions in Ecuador and mail-in contests in Nepal (207, 259) have found that the most popular names for condoms usually suggest strength, masculinity, and protection—such as *Dhaal,* meaning "shield"; *Raja,* meaning "king"; and *Panther.* The names chosen for the first OC brands generally suggested femininity and caring, such as *Maya,* meaning "affection"; *Mithuri,* meaning "close female friend"; and *Gulaf,* meaning "rose." Some of the new OC brands have names that appeal to women who prefer a more medical-sounding name—*Norminest Fe* in Egypt, *Ovacon* in Bangladesh, and *Nilocon* in Nepal.



When research found that potential customers thought the women on the *Maya* OC package at left looked sickly, the Bangladesh Social Marketing Project switched to a new design, at right.

The pictures and colors on packages also are important. In Bangladesh many potential customers thought that the women pictured on the original package for *Maya* looked thin and sickly, presumably as a result of taking the OCs. Packages were later redesigned to feature a stylized drawing of a woman (107) (see photo, this page). In Egypt in 1983 market research found that most women thought that the woman featured on *Norminest Fe* packages looked too Western. The logo was modified before *Norminest Fe* was launched (136).

Packaging is expensive. The Bangladesh program spent 11 percent of the budget on packaging in 1981 and 6.5 percent in 1982; the El Salvador program spent 16 percent in 1984, the Nepal program, 11 percent in 1983 (22, 56). The Sri Lankan program, which does little promotion, spends the largest share of its budget on packaging—about 34 percent in 1984 (68). In some cases the "global" CSM brands supplied by US AID—such as condom inner packets featuring a picture of a panther and foaming tablet inner packets featuring a flower logo—could be sold without outer packaging to save on the costs. In most programs, however, outer packaging is necessary to protect products during transportation and storage, to carry government-required information, to differentiate CSM products from those available through health programs, and to make products more difficult to pilfer. Most programs have minimized packaging costs by using inexpensive paper and by keeping package designs and colors simple (154). Where CSM sales of a specific brand are large, US AID may be able to negotiate for specially packaged products (35). Programs that purchase products usually do not change or add to the manufacturer's packaging. In Colombia, for instance, OCs, condoms, and vaginal contraceptives purchased directly from manufacturers are sold without additional packaging.

Sources of Supply

Eight of the 13 ongoing programs receive donated contraceptives directly from US AID. The Thai program receives products from IPPF and the Thai government as well as US AID. The Sri Lankan program receives most products through IPPF, which has received support from US AID. The Colombian PROFAMILIA program receives some products from IPPF but purchases most products from manufacturers. In 1985 the Mexican PROFAM program purchased all products. The Indian government purchases *Nirodh* condoms directly from a local manufacturer.

CSM managers have expressed three concerns about donated products: (1) limits on the number of different products and package designs; (2) long lead times for orders; and (3) changes of brands (107). An early problem with package designs occurred when the inner packaging on donated products sold by CSM programs was the same as on products that other family planning programs gave away free. In response, US AID developed different inner packaging for CSM products. US AID also now provides a number of different types of condoms and both regular and low-dose OCs so that CSM programs can increase their product lines. Lead times for regular orders of contraceptives from US AID are, for example, 18 months for condoms. This time is needed because contraceptives are bought in large quantities on a competitive basis to obtain the lowest price. If demand for a CSM product suddenly increases, however, donors have usually been able to provide additional supplies quickly from stockpiles.

In two instances a switch in products obtained from donors has raised concerns for CSM programs. Such a switch would usually require dropping an established brand and introducing a new one. In Sri Lanka the Family Planning Association, in order to obtain more supplies from IPPF with the supplies budget allotted to it, stopped selling the relatively expensive British *Durex* condoms that had been repackaged as *Preethi*. The result was slow sales of condoms for a time (228). A US law requiring that assistance funds be used to purchase US products whenever possible led to a switch in the brand of foaming tablets. US AID made a one-time purchase of *Neo Sampoon* foaming tablets from the Japanese manufacturer because no similar US product was available at the time, and grantees were told that a switch would later take place. When this occurred in 1984, the Bangladesh program avoided problems by arranging to receive *Neo Sampoon* through the Japanese government. In contrast, the Egyptian program switched products but stopped advertising tablets until the new product could be introduced.

The two programs that buy their products—PROFAMILIA in Colombia and PROFAM in Mexico—do so for different reasons. PROFAMILIA received all products from IPPF until 1975. Now, in addition to receiving IPPF donations, PROFAMILIA buys products from manufacturers. This change was made partly because of delay and losses in transit with IPPF products and because local companies objected to PROFAMILIA's selling only donated products (172). Since PROFAMILIA buys a large volume of products, it generally receives a discount (150).

The Mexican PROFAM program, which received US AID and UNFPA support in 1980 and 1981, now is self-supporting. Donor assistance was discontinued in 1981 when the Ministry of Health began enforcing a law requiring that any brand-named pharmaceutical product had to be manufactured by the brand sponsor in Mexico. This prevented PROFAM from repackaging products under its own label. As a result of all these restrictions, OC and spermicide sales had virtually ceased by 1983, when all donated supplies had been exhausted (see Figure 10, p. J-803). Condom sales continued, using some purchased condoms and, through 1984, condoms previously donated by US AID. The program now buys only packaged products from Mexican manufacturers and is working to develop its own production capability for spermicides and condoms (15). As of 1984 sales of condoms and OCs still were lower than in early 1981. Spermicides had been dropped entirely.

Adding Noncontraceptive Products

A few CSM programs have experimented with selling noncontraceptive products through their established distribution and sales network. Three CSM programs—in Bangladesh, Nepal, and Thailand—have sold oral rehydration salts (see box, pp. J-785–786). Three programs— in Colombia, Mexico, and Thailand—have sold household products such as aspirin, disposable diapers, and vitamins. The reasons for adding these products are to provide health products to people who need them and/or to increase revenues.

Adding household products to increase revenues has met with mixed success. PROFAMILIA began selling six noncontraceptive products in Colombia in 1981—an analgesic, sanitary napkins, disposable syringes, antibiotics, disposable diapers, and ampules of distilled water (used for dissolving powdered antibiotics that are to be injected). By 1984 only the distilled water was still being sold. The others had been dropped because there was little consumer interest in them, competition in the marketplace was too intense, and/or storage and transportation were too difficult. The ampules of distilled water sell well because they are available only from PROFAMILIA (15, 18).

Lessons Learned About Products

- In most countries promotion of condoms should try to overcome their poor image by emphasizing that condoms are safe, effective, and appropriate for married couples.
- In many countries OCs are a successful CSM product partly because of cooperation with the health care community. CSM programs should consider promoting OCs to medical personnel.
- Although IUDs have been a successful CSM product in Egypt, their sale is feasible only where considerable health care support is available.
- In general, selling more family planning products and more brands of each product increases overall sales.
- A CSM program that switches to selling mostly higher-priced brands may lower unit sales.
- Packaging is important to consumers' perceptions of a product. If products are repackaged, the names, colors, and logos that appear on outer packaging should be pretested to assure that they are attractive and acceptable.
- Most programs must rely mainly on donated products because of the expense of buying from manufacturers.
- Programs that rely on donated products must develop ways to project inventories and procurement needs well in advance.
- Noncontraceptive products are not necessarily money-making additions to the CSM product line.

Social Marketing of Oral Rehydration Therapy

In a growing number of countries social marketing principles have been successfully used to promote oral rehydration therapy (ORT). ORT involves drinking a solution of water, sugar, and mineral salts to replace the water and salts lost by the body during diarrhea. This dehydration kills an estimated 5 million children annually (90). (See **Population Reports**, *Oral Rehydration Therapy (ORT) for Childhood Diarrhea*, L-2, November-December 1980.)

Most social marketing of ORT has promoted and sold packets of oral rehydration salts (ORS), which are to be dissolved in water. As part of promotion, mothers must be told how to mix the solution accurately and how to give it to the child. They also must understand that ORT will not stop diarrhea and that continuing to feed the child is important. Thus social marketing programs must communicate a great deal of information to customers as well as sell them a product.

Egypt, Honduras, and The Gambia

In Egypt, Honduras, and The Gambia, marketing techniques including advertising and consumer research have been used to sell ORS packets or promote homemade ORS. These programs have chosen to distribute supplies largely through the health care system or through volunteers rather than emphasize established retail outlets.

In Egypt mass media advertising explains diarrheal dehydration, promotes use of ORT, tells where to obtain ORS, stresses the importance of continued feeding during diarrhea, and explains how diarrhea can be prevented. ORS packets are sold in pharmacies and provided free in clinics.

The campaign is part of a 5-year program jointly sponsored by US AID and the government of Egypt with technical assistance from the John Snow Public Health Group. The campaign began with a pilot project in Alexandria in the summer of 1983. In early 1984 and 1985 intensive national campaigns were carried out before the summer diarrhea seasons. TV ads featuring a popular actress portraying a concerned mother were especially well received. It is expected that the program will be taken over completely by the government of Egypt by 1988 (101).

The campaign appears to have had a marked effect on knowledge and use of ORT. In May 1983, before the campaign began, 32 percent of mothers surveyed in Alexandria knew about the dangers of dehydration, 5 percent knew about ORT, and one percent had used ORT. Representative sample surveys carried out throughout Egypt in December 1984, a year into the campaign, found that about 90 percent of mothers recognized the dangers of dehydration, about 95 percent knew about ORT, and about 50 percent had used ORT. Among users, the percentage who correctly mixed the salts grew from about 25 in 1983 to about 60 in 1984 (101).

The campaign also appears to have saved lives. In 1980 diarrhea-associated death rates in representative rural areas ranged from 4.5 to 5.9 percent. In contrast, between June 1984 and February 1985 the yearly diarrhea-associated death rate was 1.5 percent overall (2.1 percent in rural areas and 0.9 percent in urban areas), according to a study that followed over 10,000 children under age two. Also, an analysis of death registrations in Alexandria suggested that, during the diarrhea season, overall mortality in children under one year dropped by about 30 percent between 1982 and 1984 (101).

The Honduras program, begun in 1980, combined an intensive radio and print advertising campaign with training of health workers to promote home use of *Litrosol*, a locally produced ORS. The Academy for Educational Development provided technical assistance for the Honduras program as well as for programs in The Gambia, Ecuador, Peru, and Swaziland. Qualitative market research—group discussions, interviews, and tests of mixing skills—was used in developing the campaign. ORS packets were sold through the health care system as well as by village volunteers. A year after the campaign started, a survey of 750 mothers showed that 93 percent knew about *Litrosol*, 71 percent could recite the *Litrosol* radio jingle, 49 percent had used the product at least once, and 42 percent knew that *Litrosol* prevents dehydration. Another survey four months later found that 39 percent of all cases of childhood diarrhea in the preceding two weeks had been treated with *Litrosol*. Between 1981 and 1982 the proportion of deaths in children under age five that were due to diarrhea dropped from 48 to 25 percent, and overall child mortality dropped by about 13 percent (71, 75, 198).

In The Gambia, beginning in 1982, a communication campaign and a series of ORT mixing contests promoted use of a homemade sugar and salt ORT solution. Some 200,000 flyers were distributed, illustrating the correct ORT formula—eight bottle caps of sugar, one bottle cap of salt, and three bottles of water. Regular radio programs told listeners how to interpret the flyers. Women brought the flyers to village contests where they could demonstrate how to mix the solution and win small prizes. Some 11,000 women participated and became peer counselors for other women in their villages who wanted help with the formula (9, 72, 75). By eight months into the campaign, 66 percent of mothers surveyed knew that a formula for ORT was being promoted, and 47 percent had treated their children with ORT (72, 75).

Similar programs have started in Ecuador, Peru, and Swaziland, mainly to advertise the importance of ORT and the availability of ORS packets in clinics and rural health depots. The Ecuador program began in 1982 and mainly involves radio ads promoting ORS. The Peru and Swaziland programs began in 1984. By 1985 the Peru program had advertised on TV and radio in cities. Expansion nationwide is planned. In addition to radio and print ads, the Swaziland program has recruited traditional healers to promote both ORS packets and a homemade ORT solution (37).

(Continued on next page)

Social Marketing of Oral Rehydration *(Continued from previous page)*

Bangladesh, Nepal, and Thailand

In Bangladesh, Nepal, and Thailand the contraceptive social marketing programs sell ORS packets. In Bangladesh in 1983 the Social Marketing Project test-marketed an ORS packet, *Orsaline*. Even though *Orsaline* was priced higher than a comparable product already on the market, was sold in pharmacies only, and was not advertised, all 50,000 packets put on the market were sold during the 3-month test. A small follow-up survey found that women liked *Orsaline* better than other ORS products, mostly because of its better taste. Some buyers either under- or overdiluted the salts, suggesting that they needed better explanations about how to prepare the solution (184). As of May 1985 the program was completing market research to determine appropriate pricing, packaging, and promotion for nationwide sales of *Orsaline*. At first *Orsaline* will be sold primarily in pharmacies. Later it will be sold through a variety of small stores (121).

In July 1984 the Nepal Contraceptive Retail Sales program began test-marketing ORS packets supplied by UNICEF, calling them *Jeevan Jal*, or "life fluid" (216). It advertises them mainly on radio and with posters. Sales have been brisk. In fact, the program's supplier often has not been able to keep up with demand. The program plans to begin marketing ORS nationwide in 1985. Market research is being planned to find out more about customers and to find out whether the product is being used properly (134).

The rural CSM program in Thailand has sold ORS for a number of years, but without much success, probably because the product has a poor taste and is not attractively packaged. In hopes of making ORS more attractive, in 1984 a new, smaller package, an explanatory brochure, and a point-of-purchase display were developed for lemon-flavored salts. ORS will be promoted not only for use during infant and child diarrhea, but also for adults for "energy loss" (17).

In Thailand, the Population and Community Development Association (PDA) sells a number of health and household products through its village distribution program, including oral rehydration salts, vitamins, and drugs to combat intestinal parasites. Very little profit is made from these sales, and the program provides them for their health benefits rather than to make money. More profit per sale—eight times as much—is made from selling promotional items such as key chains, cigarette lighters, and T-shirts (15, 17).

The Mexican PROFAM program has had more success with noncontraceptive products. In 1983 it began selling eight noncontraceptive products, including cold capsules, ballpoint pens, and vitamins (15). The program sells different products at different times depending on consumer demand and competition. In 1985 three were sold—syringes, disposable diapers, and key chains with a condom embedded in plastic. Noncontraceptive products have provided substantial revenue that has helped to support PROFAM's contraceptive sales (51).

These experiences suggest that, to be profitable, noncontraceptive products must be in high demand, priced very competitively (which often requires a special arrangement with a manufacturer), or must be available exclusively through the CSM program. The Mexican and Thai programs have raised more revenue through other strategies. PROFAM has provided advertising services to other Mexican companies, and the Population and Community Development Association has provided consulting services to other CSM programs (15).

PRICING

Setting the appropriate price for CSM products is important to reaching the intended customers. Major factors to be considered are:

- basic program goals, especially the desire to reach more consumers versus the desire to recover a larger portion of costs;
- prices of other personal products and other commercially available contraceptives and the incomes of intended customers;
- consumers' expectations;
- government pricing regulations;
- distributor, wholesaler, and retailer margins; and
- ways to increase prices over time.

Determining the Right Price

Prices must be neither too high nor too low. When prices are too high:

- low-income couples may not be able to afford them;
- slow turnover may discourage distributors and retailers, who often rely on high-volume products; and
- commercial brands may compete with CSM products.

When prices are too low:

- consumers may question the quality of products;
- low margins may cause distributors and retailers to lose interest in CSM products; and
- program revenues may not recover enough of program expenses (28, 43).

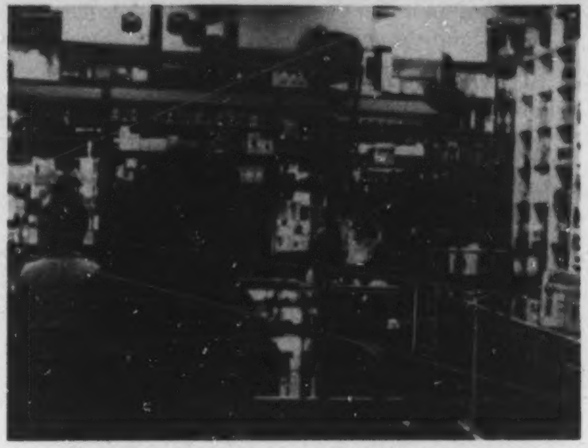
The choice of prices depends on balancing the overall goals of making products widely available, even to those with very low incomes, and recovering part of program operating costs. On one end of the spectrum is the Bangladesh program, where prices for *Raja* condoms and *Maya* OCs are set so low that even the poorest villager can afford them: less than $.01 (US) for one condom and $.06 for one cycle of OCs in 1985. Total operating costs—including costs of advertising and distribution—are relatively high in Bangladesh because of the effort to reach so many people in remote areas. Nevertheless, these costs were not considered when prices were set because the goal of reaching as many people as possible was all-important (47, 203). At the other extreme is PROFAMILIA's urban CSM program in Colombia, which sets prices to serve a largely middle-class market. Sales revenue covers operating costs and the cost of purchased commodities and has regularly produced profits that subsidize activities in poorer rural and semi-urban areas (79, 172). Most CSM programs—including all those funded by US AID—emphasize serving large numbers of poorer couples. Thus, initially prices are set comparatively low.

For programs that want to sell to as many people as possible, experience has suggested three rules of thumb: (1) The price for one month's supply of contraceptives should be no more than one percent of the monthly household income of lower-income groups. (2) Prices for CSM contraceptives should be similar to prices of other frequently purchased items such as soap, toothpaste, and bread. (3) Prices of CSM products ~~should~~ be about half the price of other commercially available contraceptives (104, 106).

In addition to these general guidelines, it is useful to find out how potential customers will react to various prices. Market research can answer such questions as: How much do consumers expect to pay for contraceptives? Do consumers perceive higher-priced contraceptives to be better in quality? How do consumers react to price changes (106)?

In general, reactions to prices have been studied through small-scale qualitative studies or sample surveys. In Bangladesh, Egypt, Jamaica, and the Caribbean, such research found that products priced much lower than the norm would be considered poor in quality (26, 104, 107, 155). The Jamaican research also found that low prices did encourage poorer couples to buy CSM products despite worries about quality (129, 130, 131). In Nepal in 1981 group discussions and individual interviews in eight districts found that people considered *Gulaf* OCs inexpensive at about 12½¢ (US) per cycle but *Dhaal* condoms too expensive at 1⅓¢ each (135).

How do prices affect sales? There appears to be no simple answer to this question. Within a certain range, price may have little impact on sales. In the Philippines a 1972 study of a condom marketing program found that 25 centavos (about 3½¢) per customer was just as acceptable as 10 centavos (about 1½¢) (265). In fact, a review of studies in developing countries concluded that free and modestly priced products seemed to attract the same numbers of users. Above a certain level, however, higher prices reduced demand (119). A study using an economic demand model, when applied to data from Jamaica and Thailand, suggested that higher prices prompted people to switch to less expensive brands or methods (12). In contrast, using data from the Philippines, the same model suggested that higher prices increased demand. Perhaps in the Philippines the belief that higher prices mean higher quality overrides slightly higher costs (11).



Currently, radio reaches the most people in developing countries, but television is spreading quickly. Here, a TV spot for *Perla* OCs is taped in Honduras. (Courtesy of Needham, Porter, Novelli)

Table 3. Prices (in $US) to Participants in the Distribution System in the Nepal and Indian Contraceptive Social Marketing Programs, 1985

Nepal—*Gulaf* oral contraceptives
(Sold by program to wholesaler)

Price to Wholesaler		Price to Retailer		Price to Consumer
$.09	→	$.102	→	$.12
	11.8% margin 1.2¢ mark-up		15% margin 1.8¢ mark-up	

India—*Nirodh* condoms (package of 3)
(Sold by program to commercial distributor)

Price to Distributor		Price to Wholesaler		Price to Retailer		Price to Consumer
$.013	→	$.015	→	$.016	→	$.02
	13.3% margin 0.2¢ mark-up		6.3% margin 0.1¢ mark-up		20% margin 0.4¢ mark-up	

Sources: Nepal Contraceptive Retail Sales Program (137), Reed (166)

Government Pricing Regulations

For many programs, the government must approve initial prices, price increases, and distributor and wholesaler margins for pharmaceutical products (usually including OCs and spermicides, sometimes including condoms). The prices that are acceptable as well as the proper procedures and timetables to follow must be learned well in advance. Delays in approvals can cause serious problems for a CSM program. For instance, the Ecuador program planned to start sales in August 1984. In April 1985 the program was temporarily suspended, however, because the Ministry of Commerce and Finance had not acted on proposed prices for any ethical products, in part because rapid inflation made setting appropriate prices difficult (46, 206).

Distributor, Wholesaler, and Retailer Margins

CSM prices must provide sufficient financial incentives to retailers, wholesalers, and, where involved, commercial distributors. At each of these three levels, margins are added to the base price to pay for expenses and provide a small profit (see Table 3). Distributors, wholesalers, and retailers may be unwilling to carry and promote CSM products energetically if the margins are below those of other products they handle (43, 106, 164, 240).

Most CSM programs provide margins at all three levels typical of the country in which they operate. (As noted, in many countries margins for pharmaceuticals are set by law.) Distributor margins usually are about 15 to 20 percent. Wholesaler margins range from 4 to 8 percent, and retailer margins, from 15 to 25 percent (47, 69, 103, 174, 178, 190, 240).

Some programs have offered higher margins as an incentive. In Nepal margins for CSM products were originally set at 20 percent rather than the usual 15 percent for retailers and at 16 percent rather than the usual 8 to 10 percent for wholesalers (134). In India the *Nirodh* program allows distributors a 13 percent margin, higher than that offered on most products.

A major problem for most CSM programs is that, even with high percentage margins, the actual cash mark-up of CSM products is small because prices are low. For instance, in Jamaica, even though retailers earn a 27 percent margin on *Panther* condoms, the cheapest commercial condom provides them with seven times more actual profit on each sale (106).

CSM programs have developed a number of ways to overcome this problem. The best solution, of course, is to generate high-volume sales that increase total profits for retailers. Many CSM programs provide special discounts and other promotional offers to retailers who place large orders. In Egypt, for instance, extended payment terms (30 days) were offered on large orders. Those who ordered a gross (144) or more of *Tops* condoms were given displays (104, 163). In Nepal offering retailers a free condom for each condom bought increased sales to retailers by 60 percent in 1978 (262). Other give-aways for retailers in Nepal have included cash prices in a display contest and free calendars, prescription pads, and point-of-purchase materials (256). Such discounts and bonuses encouraged retailers' purchases more than the high margins (190). Also, retailers may like "multipacks," such as 12 condoms in a box, since the profit per sale is greater than on individually packaged items.

Some programs have appealed to retailers' and distributors' public spirit and sense of patriotism. As noted, at the start of the *Nirodh* program in 1967, the Indian government appealed to major companies to distribute *Nirodh* along with their own products. In Bangladesh many wholesalers initially agreed to handle *Raja* and *Maya* because they supported the program's ultimate goal of slowing rapid population growth. As the program matured and sales steadily increased, however, wholesalers continued carrying CSM products for purely business reasons (240).

Lessons Learned About Pricing

- Market research can be helpful to see what prices are most acceptable.
- Prices should be low enough that all potential customers can afford them, but not so low that people assume that the quality of products is poor.
- Well before sales start, CSM management should evaluate all government regulations that might affect pricing.
- Margins should be enough to encourage distributors, wholesalers, and retailers to carry and promote CSM products. Where mark-ups are too low to do this, other schemes such as bonuses and discounts should be offered.
- Prices of CSM products should be raised regularly to keep up with inflation in consumer prices and program costs.
- Small price increases usually do not affect sales substantially, but large increases—such as doubling the price—may reduce sales.
- Before higher-priced brands are added to a CSM program, the market should be evaluated to assure that the brands will not directly compete with commercial products already available.

Price Increases

Inflation rates in countries with CSM projects have been very high, in 1983 ranging from 130 percent in Egypt to 320 percent in Colombia over the lifetimes of programs (106). CSM prices have remained constant in some programs, however. Thus, even with rising sales, the gap between expenses and revenues has grown. Also, as the real value of a CSM sale has dropped, so have the real profits made by distributors, wholesalers, and retailers. For them, participation in the CSM program has become less and less attractive. Also, the lower cost of CSM products in comparison with other products may damage the image of high quality that programs work to project.

CSM professionals recognize that programs should regularly increase prices to keep them in line with the regularly increasing prices of all other commercial products (43, 78, 106, 107, 164, 240). Yet for some programs raising prices can be a difficult, protracted process. It can take months or even years to obtain government approval, if it is obtained at all. In Jamaica it took three years—from 1978 to 1981—to win government approval for price increases. Meanwhile the inflation rate was about 20 percent annually. By 1980 wholesalers were making no money on condoms, and the distributor was actually losing money on each condom sold to retailers. By the time approval was granted, the new "higher" prices were actually lower in real terms than the original 1975 prices, and some retailers had stopped carrying CSM products (103, 177, 214). The Jamaican program is planning to increase prices again in 1985.

Where programs have raised prices, consumer reactions have varied. In Jamaica the 40 to 50 percent price increases in 1981 had no noticeable effect on sales (240). Similarly, in Egypt prices for the *Gravigard* IUD were increased in 1980 from 1.5 LE (US $2.14) to 2 LE ($2.85) (a one-third increase) and for foaming tablets, from 30 p. ($.43) for 20 tablets to 30 p. for 12 (a two-thirds increase), but sales were not affected (104). By contrast, in El Salvador, doubling condom, OC, and foaming tablet prices in 1983 coincided with a 50 percent decline in sales. Program management attributed the sales drop partly to the higher prices (204, 240). In India in 1974 doubling the price of *Nirodh* coincided with a decrease in sales, although a simultaneous cutback in the promotion budget also may have contributed (13) (see Figures 1, 5, 7, 9). Generally, large increases in price affect sales, but small ones do not.

MARKET RESEARCH AND EVALUATION

Every element of a social marketing program can benefit from market research—that is, the systematic collection and analysis of marketing data. Market research serves three broad purposes:

- **Program planning.** Initially, by identifying the status of the marketplace and the needs and preferences of audiences (especially potential customers), market research can guide pricing, distribution, and promotion.

- **Program monitoring.** By periodically and actively monitoring short-term impacts, market research can guide managers in making midcourse adjustments.
- **Program evaluation.** By measuring performance against program goals, research evaluates program performance.

In most established CSM programs, market research has been used sporadically, mainly because of inadequate funds or lack of appreciation of the value of research. The Egyptian Family of the Future program is an exception. Research results guide most phases of program operation. Between 1982 and 1985 some 16 studies were carried out, and in 1985 four more were in preparation or in progress. They have ranged from pretests of advertising messages to surveys of physicians who inserted IUDs (136).

Program Planning

A main purpose of market research for program planning is to gather information about the potential customer (see pp. J-779–780). Surveys are the main means of gathering quantitative information. Many programs also have undertaken small-scale qualitative research, such as focus-group discussions.

Surveys require a randomly selected sample representative of potential customers. Through structured questions, surveys can address such questions as: How many potential customers are there? What do they think about family planning? What types of contraceptives are they most likely to use? What retail outlets do they frequent? Surveys also provide basic demographic information: age, sex, family size, income, education, employment, residence, and the like. Where available, the World Fertility Survey (WFS) or a Contraceptive Prevalence Survey (CPS) may provide background information about unmet need for contraception, but a special survey may prove necessary, as was the case when the Egyptian program expanded from Cairo and the Nile Delta to cities in upper Egypt.

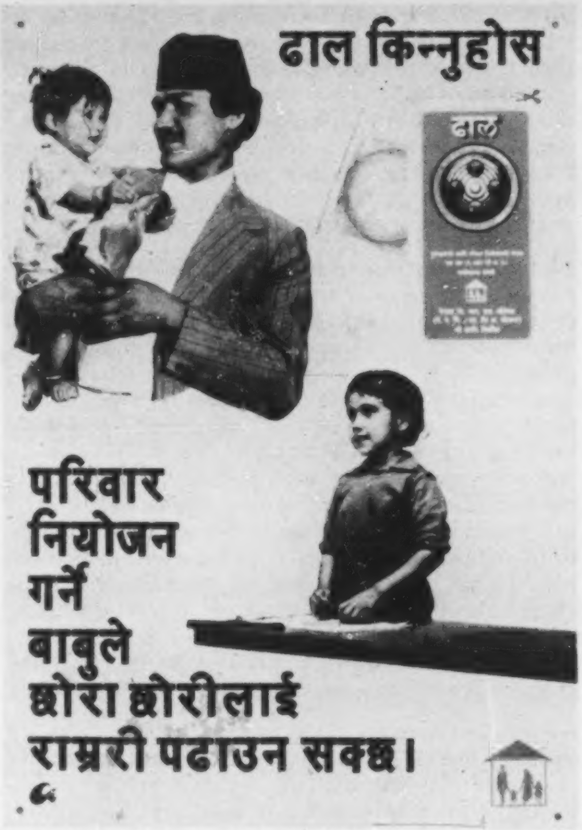
Qualitative research such as focus-group discussions provides detailed information about the attitudes of potential customers. For a focus-group discussion, a small group of potential customers is selected—for example, low-income married women or young men. A trained interviewer discusses with the group their preferences, purchasing patterns, media habits, and attitudes toward family planning. Results of this type of research often guide subsequent survey research.

Research for planning also may need to address distribution and retailing as well as the attitudes of policy-makers, religious leaders, and other community leaders whose support is essential. Research can help program managers select distributors and retailers who serve the intended customers. Surveys can assess retailers' and distributors' preferences and concerns about carrying CSM products. Retail audits can describe, among other things, the types and quantities of contraceptives stocked and the types of displays used. The attitudes of influential people can be evaluated through interviews or discussions or through small surveys.

Program Monitoring

Research for program monitoring aims at fine-tuning or refining marketing strategies and activities. This research usually addresses specific operational issues: Is there a continuous supply of the product at retail outlets? Are sales responding to advertising? Is packaging attractive and culturally acceptable? Are consumers using the product correctly? Ideally, program activities should be monitored continually. Simple, rough assessments that suggest solutions quickly are preferable to more elaborate research that takes time. Some of the research methods that have proved useful for program monitoring are:

- small surveys,
- focus-group discussions,
- product and message tests,
- retailer-intercept surveys,
- tracking studies, and
- retail audits.



A Nepalese sign urges, "Please buy *Dhaal.* The father who practices family planning can educate his children well." Market research in both Nepal and Bangladesh has found that men react positively to advertising messages about educating their children.

Small surveys have addressed such topics as awareness and use of CSM products and reactions to names, packages, and prices. For instance, a 1982 Sri Lankan survey of about 400 *Mithuri* users found that, in 73 percent of cases, husbands bought the OCs (85). This suggested that the newspaper ads for *Mithuri* should be directed at men as well as women. In addition, when major fertility surveys are undertaken, questions about the use of specific brands can be asked, as in upcoming Demographic and Health Surveys. Some countries are also planning surveys of men and client-satisfaction surveys similar to those conducted on voluntary sterilization (269, 270).

The Egyptian program carried out at least six small surveys between 1980 and 1985. One survey of 200 *Amaan* tablet users found that many were using the foaming tablets incorrectly. As a result, the program plans to include clearer instructions with the new foaming tablet to be introduced in 1985 and to stress proper use in all advertisements (136). A survey of physicians in five Nile Delta governorates found that they needed more information on IUDs. As a result, information packets were developed for physicians and pharmacists, and training programs for physicians were started (136).

Focus-group discussions have been used to explore consumers' preferences in depth. In Egypt, focus groups examined four different versions of an instruction booklet for nonliterate OC users before the final copy was approved (136). In El Salvador in 1982, eight focus groups concluded that the *Condor* slogan "always with you" was funny and suggested that condoms should be used for extramarital affairs (84). In Nepal in 1980-81, 19 group discussions revealed that in many areas CSM products were not regularly available and that many women were afraid of side effects of OCs (135). Since then, the Nepal program has developed a more efficient in-house distribution system and has designed advertising emphasizing that the minor side effects of OCs disappear after 90 days (259). While focus-group discussions are easy to conduct and produce quick results, information learned from focus groups may not apply to an entire region or nation.

Product and message tests give potential customers a chance to use the product or to see or hear a promotional message. Individual reactions are then sought, usually through a structured questionnaire. In Egypt, for instance, a message test of one TV ad for *Amaan* found that a few respondents objected to a physician saying "*Amaan* is effective. I can quarantee it." They thought that such an endorsement was unprofessional and inappropriate (136).

Retailer-intercept studies usually involve questioning customers as they enter or leave retail stores. In 10 Cairo pharmacies and 3 family planning clinics, the Egyptian program in 1982 interviewed users of OCs or foaming tablets and users of no contraception. Based on the results, Family of the Future singled out couples with one or two children as the major target for promotion and included information on side effects in some ads (136).

Tracking studies are useful to assess particular program activities over time. Part of a selected sample is interviewed before activities begin, and the rest, after a predetermined interval. In early 1984 Family of the Future launched an advertising campaign for its *Norminest Fe* OCs. To measure the effectiveness of this new campaign, a sample of 900 urban women was drawn up. Through interviews with half of the sample at the start and the other half three months later, the study found a significant increase in awareness of the product. The interviews also revealed that television reached the most women, particularly during evening hours. A "conference" ad, in which real physicians and pharmacists discussed OCs, proved particularly popular with those surveyed. As a result, Family of the Future has concentrated advertising in evenings and is considering "conference" ads for other products (136).

Retail audits may reveal problems with distribution or promotion. Pharmacies and other outlets are checked to determine the size and variety of their inventories, whether CSM products are given a prominent place in the store, and whether material promoting contraceptives is on display. A 1982 audit of 57 Egyptian pharmacies, for example, found that Family of the Future products were widely carried, but IUDs and *Amaan* foaming tablets were generally not as available as *Tops* condoms. Counter displays were seldom used, suggesting that more attention should be paid to their design and that pharmacists needed encouragement to use them (16).

PLANIFICA
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The El Salvador Social Marketing Project sells condoms through vending machines as well as through pharmacies. Many programs have stopped vending machine sales because of vandalism and maintenance problems. (Courtesy of *Social Marketing Forum*)

A research method that could be especially useful for program monitoring as well as for overall program evaluation is panel studies (236). These involve a group of people who are questioned at intervals to measure changes in usage, brand preference, and attitudes. These changes can then be linked to changes in program activities and used to guide future activities (128). This approach is being tried in Egypt.

Program Evaluation

Evaluation research strives mainly for overall assessments of program impact and cost-effectiveness. Its results are intended primarily for the donor agencies and national

Lessons Learned About Market Research

- Market research can be important to every aspect of CSM programs and at all phases of program development and operation.
- Research must be carried out with the relevant population for each program. Findings from one time and place may not apply to another.
- Ideally, market research should be planned so that similar issues can be examined at intervals.
- Above all, the results of market research must be analyzed and acted upon to maximize sales to the intended customers.

governments involved. Thus impact evaluation has a different purpose from market research. Evaluation results can be valuable to program managers, however, serving some of the same functions as research for program monitoring. At the same time, program monitoring research sometimes can explain results of evaluation research. While qualitative evaluations by CSM experts can provide useful insights, evaluation of program impact ideally should be both quantitative and extensive. Program evaluation usually involves analysis of sales data and sometimes surveys.

Sales data are used to calculate the number of couple-years of protection (CYP) provided by each CSM method (see pp. J-797–799). This approach is easy and inexpensive, requiring only sales data and, for condoms and spermicides, estimates of coital frequency (and thus of the number of contraceptives needed in a year). Sales data do not indicate, however, who the customers are, whether they have substituted CSM products for other contraceptives, or whether couples are using the methods regularly and effectively.

Surveys can be used to investigate these questions and to check sales data. Because program evaluation seeks to measure change, the most appropriate research strategy is to carry out a base-line survey just before program launch and similar surveys later. In rural Kenya in the mid-1970s, for example, it was possible to measure the impact of a pilot CSM program confined to a single district by comparing it with a neighboring district where a different language was spoken. Surveys were conducted in both areas before the program began and after it ended. They indicated that there was a significant increase in knowledge and use of contraceptives attributable to the CSM project (33). In larger programs comparison areas may not be available, but trend data from the project area alone would still be valuable. Usually special surveys would be needed for evaluation, but surveys conducted largely for other purposes can sometimes be helpful.

Sometimes sales data and results of a national survey conflict. In Bangladesh, for example, the results of the 1981 contraceptive prevalence survey suggested that there were far fewer users of condoms—1.6 percent of couples of reproductive age—than would have been predicted on the basis of CSM sales data—5 percent of couples. Subsequent research has suggested that condom usage was being substantially underreported because the survey questioned only women and not men. A study of over 5,000 couples found that women were much less likely to report condom use than men, particularly in semi-rural areas. The study also found that the assumption of 100 condoms per year is probably too low, and 125 is probably closer to average (1, 10).

DISTRIBUTION

A key advantage of CSM programs is that they can use existing commercial networks of distributors, wholesalers, and retailers. Using commercial networks:

- makes contraceptives available to consumers at many convenient locations that they regularly visit and
- saves the cost of operating an independent supply network (31, 78, 183, 185, 249, 260).

The major disadvantage is that retailers often do not have the knowledge or time to give customers detailed guidance on contraceptive use.

In practice, only 5 of the 13 established CSM programs rely entirely on the commercial supply network to reach retailers. For various reasons, five rely on in-house staff to distribute products to wholesalers or retailers, two use staff and commercial distributors, and one uses village residents to sell products in rural areas in addition to in-house salesmen in cities (see Table 1, pp. J-806–808).

Retail Outlets

CSM products have been sold in a variety of retail outlets: pharmacies, food stores, general stores, street hawkers, vending machines, barbershops, newsstands, gas stations, clubs, cinemas, bars, restaurants, and family planning clinics as well as through rural medical practitioners—wherever potential customers can be reached.

Selling through existing retail outlets has the potential to expand greatly the availability of contraceptives. The Indian *Nirodh* program, for example, in 1983-84 distributed 198 million condoms through over 400,000 retail outlets (105). By 1983 the Bangladesh program was distributing condoms through about half of the estimated 200,000 retail outlets in the country (56). Not only are retail outlets plentiful in most countries, but also they are found throughout the country and often are open long hours. Some programs have been hindered, however, by regulations that allow sales of OCs only in pharmacies. While selling exclusively through pharmacies may reinforce the product image of safety and effectiveness, pharmacies are concentrated in larger cities and towns. In any case, consumers may have to make a special trip to buy contraceptives at a pharmacy.

PEPSI
POPULAR POPULAR
PUESTO DE INFORMACION
PROFAMILIA

An *instructora* for PROFAMILIA in Colombia stands beside the sign and flag that designate an outlet for contraceptives. In addition to distributing contraceptives to sales outlets in her rural or semi-urban neighborhood, the *instructora* provides family planning information to both retailers and the public. (Mary Worstell)

Commercial Distribution

Almost all CSM programs have used commercial distribution systems at some time, and all programs now being planned intend to use commercial systems. Currently, the programs in India, Jamaica, Honduras, the Caribbean, and Guatemala rely exclusively on commercial distributors.

Ideally, a commercial distributor provides clean and secure storage space, inventory and sales records, a trained sales force to promote products, delivery of products to wholesale or retail outlets, and a line of credit to these customers (107, 185). Without a commercial distributor, the CSM program must arrange all this itself.

Typically, a commercial distributor transports and sells products to wholesalers, who in turn sell to retail outlets. Distributors, wholesalers, and retailers receive a margin of the retail price for their efforts (see pp. J-787–788). In many countries distributors also deliver to stockists. Stockists are large urban retailers who store, stock, and resell to smaller retailers who periodically come to them for supplies. In Bangladesh in the late 1970s, 22 percent of urban and 34 percent of rural retailers obtained CSM supplies from stockists (107, 143).

The choice of a commercial distribution system is important. It must ultimately reach retailers that serve the intended CSM customers. Furthermore, the system must serve enough retailers that potential customers can find CSM products conveniently, and promotional efforts should be sufficient to ensure reasonable sales per retailer.

In some countries CSM programs have encountered problems in using commercial distributors. Some commercial distributors have neglected promotion of CSM products because they yield less profit than other products (28, 185). In Honduras, for example, the distributor's salesmen were not promoting CSM products but merely taking orders when requested. They contended that they could not divert their attention from more profitable products. To encourage more effort, the CSM program developed a bonus plan for the salesmen (117). Also, commercial distributors may not serve rural areas. In rural areas distribution costs are higher, more effort is necessary to sell to retailers, and rural customers generally have less money to spend (28, 47, 183). Even when CSM sales are growing, a commercial distributor may have misgivings because of the uncertain future of CSM programs. In Bangladesh, when contraceptive sales increased, the commercial distributor was unwilling to expand its operation to meet the increased demand. The distributor felt that the commitment of the Bangladesh and US governments, on which the program depended, could not be counted on for the long term (107).

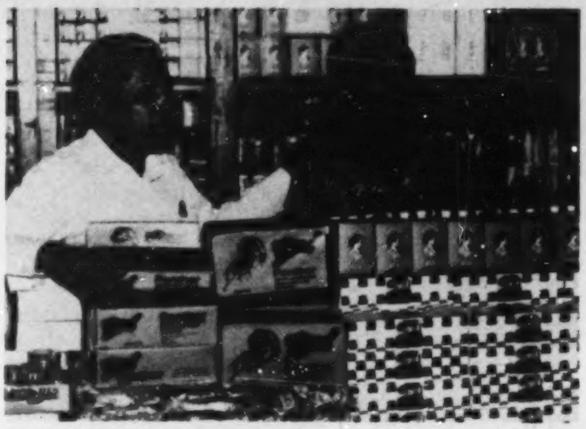
In-House Distribution Staff

Where commercial distribution has not worked well, some programs—in Bangladesh, El Salvador, Egypt, Nepal, and Mexico—have switched entirely to in-house sales forces. Although each program is different, in general CSM staff distribute supplies to wholesalers and retailers. The advantages of an in-house sales force are that:

- It can concentrate on the promotion and sales of CSM products exclusively.
- It can reach rural areas not served by commercial distributors.
- Some CSM programs can stimulate sales by paying commissions to salesmen, which commercial distributors may not do because of low profits on CSM products.

Disadvantages are that:

- Recruiting, training, supervising, and paying a sales staff is costly.
- Vehicles or other transport must be bought and maintained.
- Warehouse facilities must be provided (28).



Bangladesh's champion CSM salesman, Mohiuddin Chowdhury (left), talks with a distributor. Chowdhury sells as many as five million condoms a year. Much of his success comes from finding new retail networks to carry CSM products—not just pharmacies and general stores, but also bread merchants, door-to-door peddlers, and bangles vendors. (Courtesy of *Social Marketing Forum*)

In Bangladesh, when the commercial distributor could not satisfy retailers' needs, the Contraceptive Social Marketing Project developed an in-house distribution system. After salesmen were recruited and trained, and sales regions assigned, the system worked well. Costs are high—partly because, to stimulate sales, the program has paid generous commissions. Commissions to wholesalers alone totaled $37,822 (US) in 1980. Still, in part because annual sales have steadily increased, the in-house system has proved nearly as cost-effective as the original commercial distribution system (107, 182, 185).

A major reason for the achievements of the Bangladesh program has been the performance of salesmen such as Mohiuddin Chowdhury. Chowdhury sold over 4 million condoms to retailers in both 1981 and 1982 and over 5 million in 1983 (224). Retaining good salesmen can be difficult, however. The Bangladesh program offers large commissions, which more than double the salaries of some salesmen (55). The Sri Lankan program, which was losing many experienced salesmen to the private sector, reduced turnover by offering commissions (45).

In Egypt, Family of the Future staff distribute products to pharmacies (65). Also, detailers from the program regularly visit physicians to promote and sell products. The program had been using a commercial distributor in some regions, but because in-house distribution appeared to be more efficient, commercial distribution was phased out (162).

In Nepal the commercial distributor first picked by the Contraceptive Retail Sales program thought contraceptives were too controversial. The Nepal program ultimately had to train its own staff to distribute products to wholesalers, stockists, and retailers (107, 259). The system had some difficulty at first. Distribution and promotion were not carefully coordinated, and products were promoted before supplies were available in all areas. This damaged the program in the eyes of many retailers and consumers (190). Now, however, the system works well.

The Mexican PROFAM project employs 23 salesmen, who sell directly to pharmacies and also to drug wholesalers. PROFAM salesmen concentrate on about 6,000 medium-sized pharmacies, while the drug wholesalers reach 5,000 large pharmacies (51).

The Thai program consists of urban and rural components that operate differently. In urban areas the program employs three salesmen, who distribute products to 1,750 pharmacies. The rural project distributes to approximately 10,200 villages. In each village a volunteer has been recruited to sell contraceptives to neighbors and to advise about correct use and possible problems (17). The Population and Community Development Association, which manages both components, considers the rural project a form of community-based distribution (251).

Mixed Distribution Systems

CSM programs in Colombia and Sri Lanka use a combination of in-house and commercial distribution. When the PROFAMILIA program began in 1978, an in-house sales force was established to serve urban pharmacies. Because changes in Colombian labor laws increased labor costs, however, PROFAMILIA offered its salesmen the opportunity to become independent wholesaler/distributors. By 1982 all five salesmen had done so, saving the program substantial costs. These distributors' contracts stipulate that they may carry only PROFAMILIA contraceptives, although they may sell noncontraceptive products. In another segment of the program, PROFAMILIA has hired *instructoras* to find and sell to retailers. *Instructoras* are residents of the poor semi-urban and rural areas they serve. Rather than selling to wholesalers or to a large number of retailers, as most in-house sales forces do, each *instructora* deals with only about 40 retailers, most of them small shops (15, 150).

In the Sri Lankan CSM program, condoms are distributed by both a commercial distributor and CSM staff, dividing 10 sales regions between them. All OCs are distributed by program staff. An operations research study covering 1980 to 1983 found that program distribution staff had reached rural outlets and that costs were less than using the commercial distributor, although sales were not yet substantial (45).

Lessons Learned About Distribution

- A large number and a variety of retailers are desirable to serve people conveniently.
- Commercial firms can distribute products effectively, but, without adequate financial return, they are unlikely to promote sales vigorously.
- To expand into isolated rural areas, or if commercial distributors will not promote CSM products adequately, CSM programs may have to use in-house staff.
- Commissions to salesmen stimulate sales and help programs keep good salesmen.

PROMOTION

Promotion helps persuade consumers to buy CSM products. Promotional messages and materials call attention to CSM products, create the product's image, and also may tell how products work, how to use them, how much they cost, and where to buy them. Special promotion also should be directed at others whose support is necessary to the program—retailers, the medical community, and other influential groups.

To be effective, CSM promotion, like any communication activity, should be developed carefully, step by step, beginning with analysis of the audience, the social and economic environment, and the available media. Once designed, materials should be pretested with the proposed audience and revised as necessary. A specific plan should be developed for the use of all material. Finally, messages and promotion plans should be periodically reviewed and changed as the program matures. Market research at every stage helps assure the most favorable impacts and also reduces the risk of miscommunication or of threatening cultural norms and values (92, 282).

Media for Promotion to Consumers

CSM programs use four types of promotion to consumers:

- Advertising on radio or television, in newspapers or cinemas, or on billboards, posters, banners, and other signs in public places;
- Point-of-purchase promotions such as posters, displays, and dispensers in retail outlets;
- Public relations techniques to attract public attention, such as rallies at sports events or appearances by CSM staff on news or talk shows on radio or TV; and
- Interpersonal approaches used by program staff, distributors, and health professionals to promote and explain CSM products to consumers.

Most programs have used broadcast and print media—mostly radio and newspaper advertisements—to promote contraceptives (see Table 1). Mass media play a special role in CSM promotion because programs want to reach a large primary audience—all those who cannot afford commercial contraceptives but who want to buy contraceptives in retail outlets (229). Broadcast media reach more people per advertisement than most other approaches. In Egypt, for instance, Family of the Future uses television along with print, radio, and cinema ads since 60 percent of potential customers watch television. Radio reaches about 80 percent of the Egyptian population (160). In many countries television is expanding rapidly. In Guatemala, for example, in 1978 only 21 percent of women surveyed owned televisions, and 8 percent had seen family planning messages on TV; in 1983, 30 percent owned TVs, and 24 percent had seen family planning messages (268, 284).

All programs use point-of-purchase promotion, such as lighted in-store signs for *Dhaal* condoms in Nepal and pop-up counter-top dispensers for *Perle* OCs in Jamaica (258, 259). In Bangladesh, at first colorful dispensers were used to attract attention to packets of three *Raja* condoms each. Now many customers ask for *Raja* by name, and 90 percent of the condoms are sold in varying quantities from boxes of 100 (186). In Honduras posters advertising *Perla* OCs were specially designed with a simple logo against a large white background so that they would stand out in cluttered shops (99).

CSM programs often stage special events and give-aways, especially to introduce a new product. In Egypt Family of the Future contraceptives have been publicized at sports events and popular beaches, where free samples of condoms and foaming tablets as well as hats and T-shirts bearing product logos were given away (104). A 1983 study found that sales were higher in places where rallies were held more often. Questionnaire responses suggested, however, that much of the increase in sales was due to people switching from other contraceptives since 82 percent of those who attended and were later surveyed were already using some contraceptive method before they attended the rallies (277). In Nepal contests with frisbees bearing the *Dhaal* logo familiarized people with *Dhaal* condoms (259).

"Once I Was a Fool. . ."

Radio Ads for CSM in Bangladesh

In 1982 the social marketing firm Manoff International helped create a major advertising campaign for CSM products in Bangladesh. Sophisticated market research revealed that the campaign had to:

- Use radio, because no other medium reaches rural areas as well.
- Address men, who make most decisions and purchases.
- Offer men clear benefits from family planning, including enhanced self-esteem as head of the family as well as economic and maternal health benefits.
- Address fears about side effects based on rumors.
- Overcome couples' unwillingness to discuss sex and family planning.

Richard K. Manoff, head of Manoff International, describes the resulting radio ads in his book *Social Marketing: New Imperative for Public Health* (282):

> The creative approach clearly needed to shake up. . .male self-confidence, confront the dramatic male prototype [in the ads] with doubts about his competence as a planner of his family, and force a reexamination of his attitudes on the subject. . . .
>
> The format? A minidrama in which the protagonist (always a male), accepted as a wise man, confesses to behavior as a fool. The reason? He had believed family planning [methods] to be unsafe. Why? Because he had been listening to ignorant tales told by ignorant people. By realizing his foolish error in time, he looks into family planning (the condom, the pill, and other safe methods), finds it safe, discusses it with his wife, and with her selects a method, his self-esteem as a wise man thankfully restored.
>
> Certain key phrases were fixed features of every message:
>
> - Do not listen to ignorant tales from ignorant people.
> - I have not always been a wise man. Once I was a fool.
> - Use condoms, pills, and other safe methods.
> - Be a wise man—do the right thing.

This ad campaign probably helped sustain the steady increase in CSM sales in Bangladesh. Such an approach might also be useful in other areas where men make most of the family decisions.

Where potential customers live in remote areas, CSM programs often must develop unique promotion strategies. In Nepal the vast majority of people live in villages scattered over the mountains. Therefore, in addition to radio advertising, the project uses decorated jeeps with audio-cassette systems that play messages in local languages through loudspeakers. The jeep drivers also sell products to retailers and the public, and they place posters and point-of-purchase materials in sales outlets (256). In Bangladesh, where many areas are reached by water, sails of river-going junks have been painted with *Raja, Maya,* and *Joy* logos (186).

A few programs rely heavily on person-to-person promotion. For example, in Colombia PROFAMILIA *instructoras* talk to groups about contraception as well as distribute products (172).

Most CSM programs hire local advertising agencies to handle promotion. Such agencies are familiar with local media and have access to experienced artists, designers, producers, and other personnel. They have the special skills needed for mass media promotion, especially radio and television, which differs from clinical health education or face-to-face comunication between field workers and potential users (282). Advertising agencies usually are not familiar with social marketing, however, and they need thorough explanations of program goals, marketing plans, and operations (98).

Issues in Promotion to Consumers

Obviously, the impact of promotion depends partly on how much promotion is carried out. Expenditures for promotion vary greatly among CSM programs. The Egyptian program spent almost 37 percent of its budget, or about $1.3 million (US), on promotion in 1984-85 (127). The Bangladesh program spent 28 percent, or more than $875,000, on promotion in 1984 (25). In contrast, CSM promotion in Sri Lanka is limited to a few newspaper ads each year (56). The Jamaican program cut back on advertising in 1980, maintained only point-of-purchase ads in 1983 and 1984 (214), but resumed broadcast ads in 1985 (272). Support from the World Bank, expected to begin in 1986, will help fund mass media advertising as well as other activities in Jamaica, reinforcing support from US AID (285). The Colombian and Thai programs do little paid advertising.

Promotion works best when it is continuous as well as extensive. Without frequent reminders from advertising, some customers forget about products and stop buying them. For instance, in Honduras in 1984, after a 5-week advertising campaign, sales of *Perla* OCs doubled, rising from about 5,300 cycles in March to about 11,250 cycles in May (118). Between May and October, however, mass media advertising stopped, and sales dropped to about 6,800 cycles a month in July and August. Advertising resumed in October, and sales rose to 10,500 cycles a month in October and November (99). In El Salvador in 1982 and 1983 and in India and Bangladesh in the mid-1970s, sales dropped when promotion was suspended (13, 117).

Experience in the private sector has shown that promotions have more impact when they use brand names. Brand names are easily remembered and associated with the image created by promotional campaigns. Most CSM promotion stresses brand names. Where OCs are considered pharmaceuticals, however, brand-name advertising of OCs to the public usually is not permitted. Instead, OCs may be advertised generically. Preliminary results of a study conducted by PROFAMILIA and The Johns Hopkins University/Population Communication Services suggest that a generic advertising campaign for condoms in Cali, Colombia, increased sales. How much the increase resulted from the ads and how much from the availability of less expensive, smuggled condoms is not clear, however. The campaign did improve people's attitudes about condoms (274).

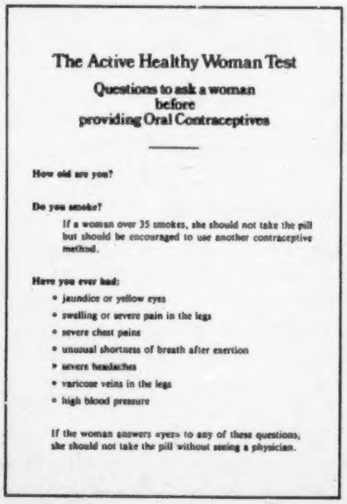
To be effective, promotional messages must appeal to potential customers. Messages should be clear and communicate a few simple ideas and directions. At the same time, they should be creatively designed to attract attention. Wherever possible, they should focus on practical, immediate benefits the consumer can expect, reasons that the benefits promised are believable, and the action the consumer should take to obtain these benefits (282). Involving communication professionals in developing messages is important, as is testing messages with consumers both before and after final production (153). In fact, consumers' opinions and attitudes often suggest themes for promotional messages. For instance, in Honduras surveys after the first radio advertising campaign for *Perla* OCs found that many women were not buying *Perla* because of misconceptions and fears about the product. Therefore, during the second campaign one ad featured a physician who discussed the safety of *Perla,* while another stressed that any minor side effects would stop after three months (253). In Bangladesh various messages were pretested through ads run in three newspapers in 1977 and 1982. The ads offered information about family planning to readers who sent in a coupon. The more popular ads, as measured by the number of coupons returned, emphasized family economics (food and shelter) and a son's future, while the least popular ad emphasized the benefits of family planning to the wife's health (94).

Promotion works best when a variety of media are used and all elements are coordinated to convey a consistent product image—that is, the overall perception of the product in the consumer's mind. A consistent image can be achieved by using the same graphics, colors, themes, slogans, and messages in all media. For example, when introducing its low-dose OC, the Egyptian Family of the Future program used the same logo, the same color scheme, and the same slogan in all of its promotional messages and materials (63).

Promotion campaigns change as consumers come to know the product. Before the product is launched, promotion providing general information is particularly important, especially where potential customers know little about family planning. Once the product is on sale, promotion tells consumers what the product is, where it can be obtained, and at what price. It usually includes a motivational message. Once the product is widely known, maintenance advertising, which often features the product logo or a picture of the product itself, maintains the interest and brand-loyalty of current customers while seeking to attract new customers.

Promotion to Retailers

No CSM program can succeed without the support of retailers. To win this support, CSM programs have emphasized to retailers that: (1) programs will sell high-quality, effective contraceptives; (2) programs will expand the market for contraceptives and create high-volume sales through promotions and pricing to suit new groups of consumers; (3) larger total profits will come with higher volumes, even though the profit per sale is small; (4) the new customers who come into a shop to buy CSM products will probably buy other products as well; (5) retailers



The Active Healthy Woman Test

Questions to ask a woman
before
providing Oral Contraceptives

How old are you?

Do you smoke?

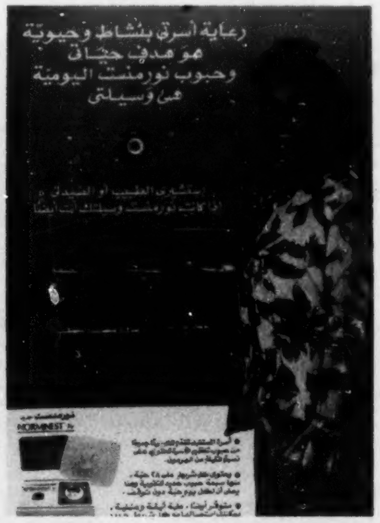
If a woman over 35 smokes, she should not take the pill but should be encouraged to use another contraceptive method.

Have you ever had:

- jaundice or yellow eyes
- swelling or severe pain in the legs
- severe chest pains
- unusual shortness of breath after exertion
- severe headaches
- varicose veins in the legs
- high blood pressure

If the woman answers «yes» to any of these questions, she should not take the pill without seeing a physician.

رعاية أسرتي بنشاط وحيوية
هو هدف حياتي
وحبوب نورمنست اليومية
هي وسيلتي
استشيري الطبيب أو الصيدلي
إذا كانت نورمنست وسيلتك أنت أيضا
NORMINEST



To help pharmacists serve women who want to use oral contraceptives, a counter-top display prepared by the Family of the Future CSM program in Egypt features a checklist of simple contraindications to OC use on the back for the retailer and an advertisement on the front for the customer. Different versions show a woman in modern or traditional dress to appeal to different segments of the market.

will benefit from various credit, bonus, and sample systems when they sell CSM products (see p. J-788); and (6) point-of-purchase promotion materials will be provided.

Most programs also inform retailers about CSM products so that they can answer customers' questions and feel comfortable displaying and promoting contraceptives. Training retailers about oral contraceptives may be especially important since women often are afraid that OCs will have adverse side effects and are unsure how to use them (21, 130, 135, 184, 259). In Nepal, for instance, groups of pharmacists in urban areas were invited to training sessions about OCs, while in rural areas project sales representatives visited retailers individually. They were told how OCs worked, how they should be used, what risk factors to look for, and what side effects might occur. Retailers received booklets explaining all methods of family planning and their availability (259). In Egypt the backs of stand-up counter displays list the questions that a pharmacist should ask women who want OCs (see photos, p. J-795).

Promotion to the Medical Community

Doctors and other health personnel must be fully informed about the goals of CSM programs and about CSM products so that they will support the program and counsel users sympathetically (235). Pharmacists are a major source of medical advice to the public and need as much information as doctors do. Support from the medical community is especially important where the major CSM products require medical assistance, as in Egypt with IUDs and in countries where OCs require prescriptions. Even where there is no prescription requirement or it is not enforced, women often rely on doctors' advice when they choose a contraceptive. In some countries—for instance, India—many doctors exaggerate the risks of oral contraceptives and discourage women from using them (166). All health programs, including CSM programs, need to inform doctors and other health workers that OCs, like all other modern contraceptives, are generally much safer than childbearing (114, 147, 167). Indeed, oral contraceptives help to prevent some reproductive cancers and reduce menstrual discomfort. Also, the best evidence shows that OCs do not cause breast cancer in any group of women (171, 179, 255). Communication to health personnel also needs to put circulatory system disease risks among OC users into perspective, emphasizing that such risks are almost entirely limited to women over age 35 who smoke (see **Population Reports**, *Oral Contraceptives in the 1980s*, A-6, May-June 1982).

Lessons Learned About Promotion

- To develop and maintain interest in CSM products, promotion should be carried out at all phases of program development.
- Radio and television should be used as much as possible to promote CSM products since they reach the most people.
- Wherever possible, CSM products should be advertised by brand name.
- Person-to-person promotion strategies may be especially important not only in educating women about OCs, but also in reaching retailers, doctors, other health care providers, and influential groups.
- Messages should appeal to the interests of intended customers and should be carefully pretested with consumers.
- Since advertising can be expensive, programs should plan their use of media carefully and try to secure free time and space as much as possible.
- Any governmental or public objections to CSM promotion tend to arise at the start of the program and to diminish as promotion becomes familiar.
- Hiring an experienced advertising agency is usually the most cost-effective way to obtain expertise, but the agency may need explanations of CSM.

To develop the support of doctors and pharmacists, many CSM programs introduce and sell their products as drug companies do—through personal visits known as detailing. Doctors did not have time to read printed matter distributed by Egypt's Family of the Future program, so the program switched to detailing by medical representatives (108). Detailers now visit over 200 physicians and almost 2,400 pharmacists in urban and semi-urban areas throughout Egypt about five times per year (63). Group seminars and conferences, a less costly approach, also are used (26, 62, 64). In the last quarter of 1984 the Egyptian program spent over 20 percent of its budget on promotion to physicians (127).

In at least two countries CSM programs promote and distribute products to traditional medical practitioners, who in turn sell them to clients. In Bangladesh a survey found that the rural medical practitioners were blaming OCs for many illnesses and complaints, regardless of the real cause. This discouraged women from using OCs. In response, detailers from the Bangladesh Social Marketing Project have visited about 30,000 of the approximately 150,000 rural medical practitioners. Some 15,000 traditional practitioners have now attended meetings, and 6,600 are selling OCs. This effort has contributed to a slow but steady rise in OC sales (47, 81, 186). In Sri Lanka, Population Services Lanka runs an independent project that since 1980 has trained over 2,000 traditional Ayurvedic practitioners to sell OCs and condoms and to counsel people about their use. In 1983 over 70 percent of those trained were still selling contraceptives (110, 195).

Constraints on Promotion

Social marketing promotion faces two major constraints:

- Resistance to mass media advertising, especially broadcast advertising;
- High costs of mass media advertising.

CSM programs have overcome these constraints in various ways.

Official, religious, and public resistance to mass media advertising has been a problem for many programs. In Sri Lanka, for example, broadcast advertising for any specific contraceptive brand is banned, although promotion of basic family planning concepts is permitted (7). Bans on broadcast advertising of prescription drugs rule out brand-specific broadcast advertising for OCs in Egypt, India (where an OC marketing program is being planned), the Caribbean, and Guatemala. Government restrictions on mass media advertising also have hindered programs in Ghana, Mexico, and Nepal. Even where broadcast advertisements for contraceptives are not restricted by law, officials often worry that the ads will offend some people.

Most objections to advertising arise at the start of a program. In time, many CSM programs have been able to overcome or circumvent these objections. In Egypt, for example, television ads that mention *Norminest Fe* OCs are directed to health professionals rather than consumers. Other ads tell consumers that safe, effective IUDs or OCs are available from local retailers but, in keeping with the law, do not mention brand names (63, 163). Also in Egypt, CSM personnel work closely with television and radio censors to develop acceptable ads for nonprescription products (63, 163). In Nepal government and private groups were briefed before advertising began (259). Where pretests show that planned advertisements do not offend the public, these results can be pointed out in such briefings.

Another major constraint on CSM promotion is expense. Promotion cost often is the largest item in the operating budget (see box, this page). If donors reduce their support, promotion is usually the first item to be cut, even though sales are quite sensitive to the level of promotion. To stretch promotion budgets, market research can determine what promotion is most cost-effective, identifying the best times and places to schedule advertising, to offer free samples, and to conduct special events (67, 136, 234, 282).

Cost Analysis of Three Contraceptive Social Marketing Programs

	Sri Lanka 1984	Bangladesh 1984	Egypt 1984-85
Staff	15%	14%	24%*
Sales	18%	17%	—
Promotion	21%	28%	37%
Packaging	36%	8%	—
Administration	9%	11%	18%
Research	1%	1%	2%
Technical Assistance	—	21%	14%
Other	—	—	5%
Annual Operating Cost	$129,747	$3,129,727	$3,631,756
Sales Revenue	$160,393	$ 694,294	$1,029,255
Net Operating Cost	+$ 30,646 (profit)	$2,435,433	$2,602,501

Note: Budget categories are not necessarily consistent among the three programs.

*Includes salaries and commissions to detailers and costs of training and rewarding volunteers. Other personnel costs may be included in other categories.

Sources: Abeywickrema (8), Bangladesh Family Planning Social Marketing Project (25), Lustig (127).

PROGRAM PERFORMANCE

The performance of a CSM program can be evaluated in different ways. Four quantitative criteria are:

- **Sales.** How much have CSM programs sold? Have sales grown?
- **Couple-years of protection (CYP).** How many CYP is the program providing?
- **Coverage estimates.** What percentage of married women of reproductive age (MWRA) and of contraceptors are using CSM products?
- **Cost per CYP.** What is the cost of reaching users?

In addition, when the first CSM programs started, it was expected that they would achieve other, less easily quantified results. These were to:

- Extend the availability of contraceptives into rural areas.
- Use indigenous private-sector institutions and expertise in program planning, operation, and evaluation.

At first glance, evaluating these factors may appear fairly easy, especially compared with evaluating other government-supported family planning or health programs. In fact, however, evaluating the actual coverage of CSM programs using sales data is very imprecise, and other data are rarely available. On one hand, those actively involved in CSM and knowledgeable about current programs tend to be advocates of CSM. They see programs in the most favorable light, minimizing the problems of evaluation. On the other hand, those who are skeptical of CSM programs tend to argue that not enough data are available for a comprehensive and precise assessment. Additional research and more rigorous, independent evaluation of CSM programs would be useful to identify better the strong and weak points of the CSM approach in different settings.

Most CSM programs have been successful by some of the criteria above, but not by others (see Table 4). Of course, the older of the ongoing programs meet one important test of success: they have survived. Major programs—in Ghana and Tunisia, for example—have ended, not because of marketing failures, but because of insufficient government support and, in some cases, management problems. In contrast, the Indian *Nirodh* program and programs in Sri Lanka, Colombia, Bangladesh, and Jamaica have been selling products for a decade or more (see Table 1). This suggests that they are indeed serving a genuine need and have been well-accepted by both the government and the public.

Sales

Sales data are the basis for most quantitative measures of CSM program performance. Sales data have three advantages:

- They tend to be accurate.
- They are fairly easy and inexpensive to collect.
- Because people pay for CSM products, they are likely to use them.

CSM sales data also have a number of disadvantages, however:

- The available data generally represent sales to distributors, wholesalers, or retailers, not to consumers. This is not a serious problem with established products since they usually move through distribution

Table 4. Ranking of 10 Established CSM Programs by Four Criteria, 1984

Number of Couple-Years of Protection (CYP)[a]	% of MWRA Served[b]	% of Contraceptors Served[c]	Net Operating Cost per CYP (in $US)[d]
1. India 1,985,000	Colombia 15.3%[e]	Bangladesh 40.5%	Colombia +$2.18 profit[f]
2. Bangladesh 1,343,111	Jamaica 12.6%	Colombia 31.2%[e]	Sri Lanka +$.20 profit (1983)
3. Colombia 565,584[e]	Bangladesh 7.7%	Egypt 30.0%	Mexico $0
4. Egypt 522,427[g]	Egypt 7.2%	Jamaica 22.9%	Bangladesh $1.75
5. Thailand 158,660[h]	Sri Lanka 4.2%	Nepal 21.0%	Thailand $2.80[i]
6. Sri Lanka 90,832	El Salvador 2.2%	Sri Lanka 7.6%	Nepal $4.67
7. Mexico 47,953	Thailand 2.0%[h]	El Salvador 7.0%	Egypt $5.26[g]
8. Jamaica 44,325	Nepal 1.5%	India 6.0%	El Salvador $14.56[j] (FY 83-84)
9. Nepal 43,514	India 1.4%	Thailand 3.4%[h]	
10. El Salvador 15,740	Mexico 0.4%	Mexico 1.1%	

FY = fiscal year
MWRA = married women of reproductive age

[a] CYP estimated on the assumption of 100 condoms or foaming tablets per year, 13 cycles of oral contraceptives (OCs) per year, and an average of two years of use for each IUD. Based on sales data from: India: India. Ministry of Health and Family Welfare (105); Bangladesh: Schellstede (182); Colombia: PROFAMILIA (158); Egypt: Triton Corporation (252); Thailand: Tipprapa (251); Sri Lanka: Family Planning Association of Sri Lanka (278); others from SOMARC.

[b] Based on number of women age 15–49 interpolated for 1984 from: United Nations (286); except Egypt, estimated from Visaria (287) and Egypt World Fertility Survey (275). Number of women then multiplied by percentage married based on World Fertility Survey data from Smith et al. (199) for Bangladesh, Colombia, Jamaica, Mexico, Sri Lanka, and Thailand and from Egypt World Fertility Survey (275) for Egypt (adjusted for ages 15-49); from Visaria (287) for India and Nepal; and from Asociación Demográfica Salvadoreña (267) for El Salvador.

[c] Based on overall contraceptive prevalence among women age 15–49 married or in union as reported in most recent Contraceptive Prevalence Survey, except India, from: Bhatt et al. (271).

[d] Except as noted, excludes commodities cost and takes account of sales revenue. Calculated from CYP shown in first column and 1984 calendar year costs from: Colombia and Egypt: Binnendijk (29); Bangladesh: Bangladesh Social Marketing Project (25); Nepal: Hamal (92). Net operating cost per CYP from: Sri Lanka: Family Planning Association of Sri Lanka (68); Mexico: Snyder and Associates (205); Thailand: Tipprapa (251); El Salvador: Kraus (117). Cost not available for India and Jamaica.

[e] Colombia: Includes all three components of contraceptive sales: urban pharmacy sales, urban and rural shop sales, and clinic counter sales (see Figure 6).

[f] Colombia: Includes cost of purchasing most contraceptives. Covers urban pharmacy sales (+$3.81 profit) and urban and rural shop sales ($2.11 net cost); clinic counter sales excluded.

[g] Egypt: CYP for IUDs consists of all CYP provided by IUDs assumed to be in use during 1984, whether sold in 1984 or before. CYP that will be provided in subsequent years by IUDs sold in 1984 are excluded.

[h] Thailand: Includes urban pharmacy sales and rural community-based distribution (see Figure 3)

[i] Thailand: Includes urban pharmacy sales ($2.58 per CYP) and rural community-based distribution ($3.27 per CYP)

[j] Includes cost of condoms purchased for vending machine sales

channels quickly. With new products, however, sales to consumers may lag behind sales to distributors or retailers.

- Sales data do not provide information on continuation rates, failure rates, or consumer characteristics such as age and fertility.
- Sales data do not reveal the extent of substitution—that is, how many customers are shifting to CSM products from other sources of supply.

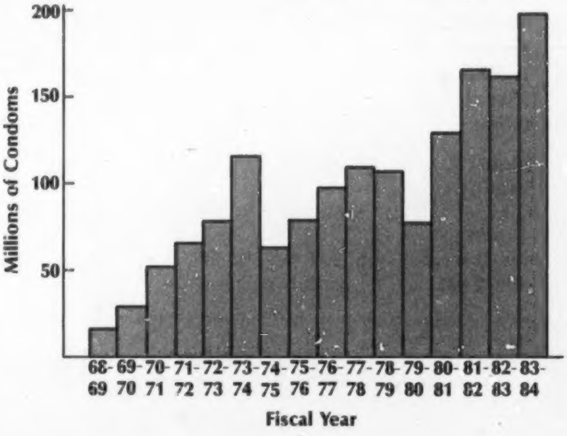
In almost all programs, sales increased steadily in the early years. In some, growth has since slowed or leveled off (see Figures 1-10). Whether this is because of weaknesses in the program or other factors, such as ready availability of family planning services and supplies from other sources, needs to be assessed in each case.

The 10 programs that have been selling products for more than four years—in India, Colombia, Sri Lanka, Bangladesh, Jamaica, Nepal, Thailand, Mexico, El Salvador, and Egypt—together sold over 290 million condoms and over 11.5 million cycles of OCs in 1984. As might be expected, the largest sales took place in countries with large populations. In 1984 over 198 million condoms were sold in India, and over 130 million, in Bangladesh. The Colombian PROFAMILIA program (including sales through pharmacies in urban areas, sales largely through small shops in semi-urban and rural areas, and sales through PROFAMILIA clinic counters) sold the most OC cycles in 1984—almost 5.8 million. The Bangladesh program sold about 2.2 million cycles. The Egyptian program in 1984, its first full year of selling OCs, sold almost 1.3 million cycles. (See Figures 1–10.)

Couple-Years of Protection

To relate sales figures to usage, sales are converted into couple-years of protection (CYP) against pregnancy, a rough measure of contraceptive impact. One CYP is defined as the equivalent of one year of contraceptive protection for one couple. With OCs, it is generally assumed that 13 cycles provide one CYP. Calculating CYP provided by other methods is more difficult and probably less accurate. To calculate how many condoms or spermicides are needed to provide a full year of protection, evaluators

Figure 1. Sales of Condoms to Wholesalers by the Indian *Nirodh* Social Marketing Program, 1968–1984



Source: India. Ministry of Health and Family Welfare (105) need to know how many times intercourse takes place during the year. Usually 100 condoms or foaming tablets are assumed to provide one CYP. This figure may be too low in some countries, however. Data from Bangladesh and Guatemala suggest that a higher number—perhaps as high as 144—would be more accurate (1, 10, 27). To calculate how many CYPs an IUD provides, evaluators need to know how long the average IUD is used. In Egypt a reasonable estimate is that one IUD remains in place for two years on average and therefore provides two CYP (23). CYP calculations from sales data assume that all products entering the distribution chain are immediately sold to consumers and used. Despite these often unconfirmed assumptions, the concept of CYP is useful for a rough estimate and to compare different contraceptive methods and different national programs.

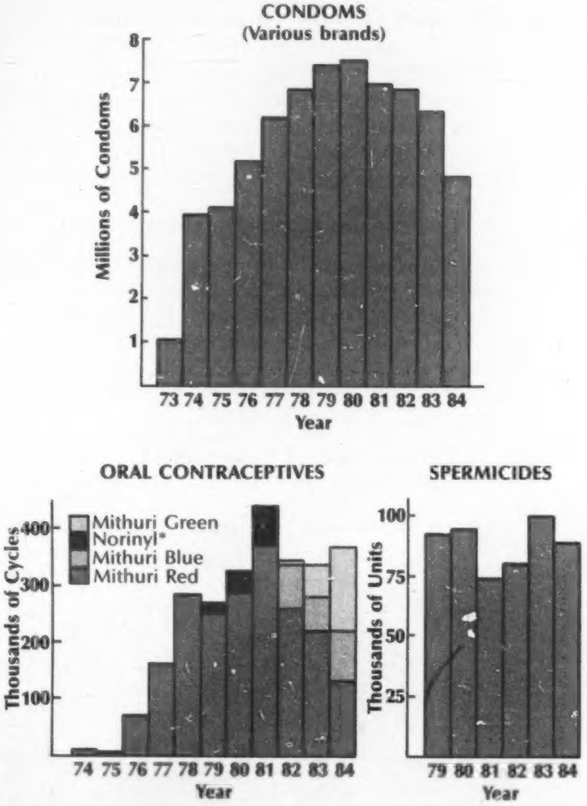
The estimated CYP provided by the 10 established social marketing programs varies. As expected, programs in the two countries with the largest populations, India and Bangladesh, provide the most protection. In 1984 the Indian *Nirodh* program provided almost 2 million CYP; the Bangladesh program, about 1.3 million. Other estimates of CYP range from about 566,000 in Colombia and 522,000 in Egypt to 16,000 in El Salvador (see Table 4). (For Egypt CYP provided in a given year by IUDs are calculated from monthly sales data for that year and preceding years, assuming that each IUD sold is used for an average of two years.)

Coverage

To estimate what percentage of all reproductive-age couples are served by CSM programs, it is assumed that one CYP equals one couple. This assumption cannot be confirmed from sales data, of course, because 100 condoms sold could be used by one couple over a year's time or by 12 couples over a month's time. Nevertheless, it serves as a rough estimate of the minimum percentage of couples served at any one time or the percentage of couples served for a full year. A recent study of a community-based distribution program in Guatemala found that actual usage (derived from detailed monthly program enrollment statistics) was generally very similar to usage estimated by counting the supplies distributed and converting those data into couple-months of protection. The similarity was greatest for OCs, which were the major method used in the program (27).

Of the 10 established CSM programs, in 1984 the Colombian program reached the highest percentage of possible users, serving 11 percent of MWRA through the urban pharmacy component alone and a total of 15 percent for all three components. The Jamaican program was second, with about 13 percent of MWRA. The Bangladesh and Egyptian programs served between 7 and 8 percent of MWRA. The El Salvador, Indian, Nepal, Mexican, and Thai programs cover between about one and two percent of MWRA (see Figures 11 and 12). In India this percentage, although low, represents almost two million couples.

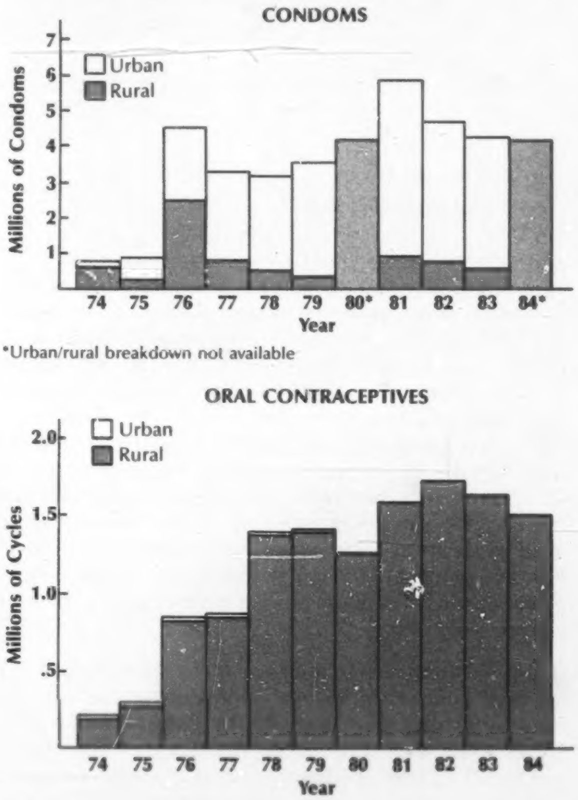
Figure 2. Sales by Distributors in the Sri Lankan Contraceptive Retail Sales Program, 1973–1984



**Norinyl* brand name changed to *Mithuri Blue* in 1982

Sources: Abeywickrema (8), Altman & Piotrow (13), Family Planning Association of Sri Lanka (278), Futures Group (89)

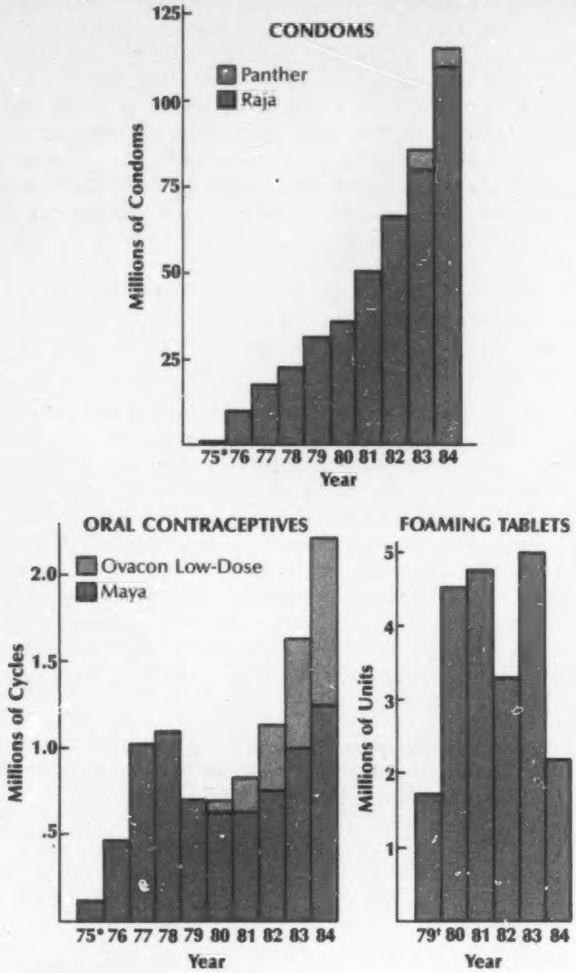
Figure 3. Sales by Distributors in the Population and Community Development Association Contraceptive Social Marketing Program, Thailand, 1974–1984



*Urban/rural breakdown not available

Sources: Altman & Piotrow (13), Tipprapa (251)

Figure 4. Sales to Wholesalers by the Bangladesh Social Marketing Project, 1975–1984



*3 months
†8 months

Sources: Derr (55), Schellstede (182)

Although the coverage of CSM programs may seem slight in comparison with the public health objective of reaching all women at risk, it is high in comparison with the coverage provided by any single commercial company in a highly competitive environment. In the US, pharmaceutical companies selling OCs consider a new OC successful if it captures $20 million in sales annually (273). Sales of $20 million represent over 166,500 CYP, or about 0.5 percent of MWRA in the US. Annual sales of the top 10 US brands of OCs taken together represent about 11.5 percent of MWRA (281). Sales in many categories of consumer packaged goods are considered very successful if they reach as little as 5 percent of the target market (28, 139). Of course, profit margins also figure heavily in determining commercial success.

It also is informative to look at the coverage of CSM programs in comparison to total contraceptive use as measured by surveys (see Table 4). The Bangladesh program serves about 40 percent of the 19 percent of MWRA who use contraception. The Egyptian and Colombian programs both serve about one-third of all contraceptors. The coverage of other programs ranges from one percent of contraceptors protected by PROFAM in Mexico to about 23 percent in Jamaica. While such estimates raise methodological questions, they do provide another rough guide to program impact. They reflect, of course, not only the performance of the CSM program, but also the availability of contraceptives from other sources. They also reflect the extent of voluntary sterilization, since couples relying on this method are not potential customers for CSM products.

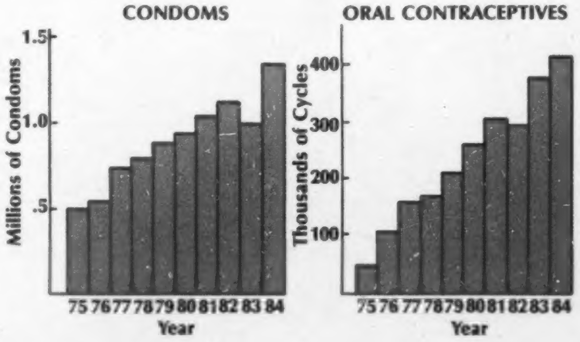
Surveys might provide more reliable estimates of CSM coverage, but to date only a few have addressed the question. For instance, the 1979 Contraceptive Prevalence Survey in Bangladesh, carried out four years after CSM sales started, asked people what brands of contraceptives they used. At that time 32 percent of condom users said that they used *Raja*, and 3 percent of OC users, *Maya* (24). The upcoming round of Demographic and Health Surveys, supported by US AID, also will ask questions about specific brands and so provide more information for assessing the performance of CSM programs (261).

Some CSM programs are the major providers of condoms and/or spermicides in the countries where they operate. In Bangladesh in 1983, for instance, the CSM program accounted for 67 percent of all condoms and 70 percent of all spermicides distributed by all national programs combined, including various free distribution programs. Commercial distribution of condoms and spermicides is negligible in Bangladesh. The program accounted for about 21 percent of the OCs distributed by national programs. In addition, commercial distributors sell a substantial number of OCs in urban areas (47). In Nepal the CSM program accounts for nearly half of all condoms distributed, all of the spermicides, and 20 percent of all OCs (109). In Colombia PROFAMILIA is the only legal importer of condoms. It serves 80 percent of condom users. The rest of the condoms are smuggled into the country and sold at lower prices. PROFAMILIA also is the exclusive legal importer of contraceptive foam and foaming tablets (150).

Do Programs Reach New Users?

Do CSM programs sell chiefly to new users or chiefly to couples who have switched to CSM brands from another source of supply? Almost no research has directly addressed this question. In addition, private-sector sales data useful for comparison often are closely guarded by distributors and manufacturers. Indirect evidence sug-

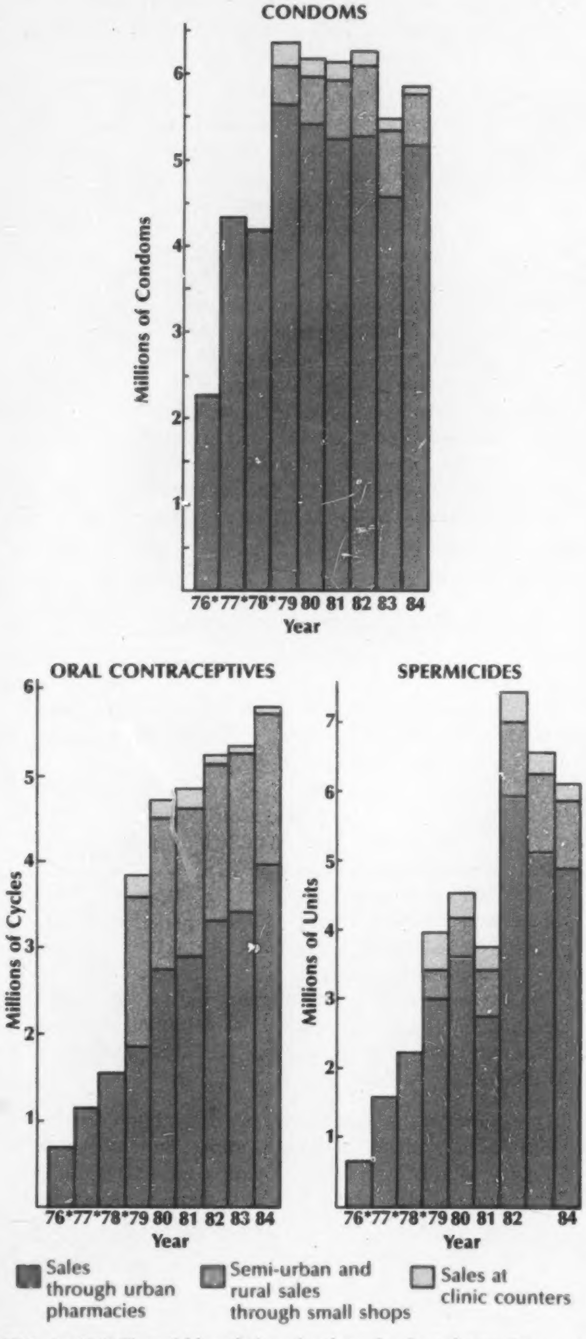
Figure 5. Sales by the Distributor in the Jamaican Contraceptive Retail Sales Program, 1975–1984



Source: Futures Group (89)

gests, however, that in countries with low contraceptive prevalence (such as Bangladesh, India, and Nepal), where there is a large market of couples using no contraception, CSM programs probably provide products without competing much with other sources of supply.

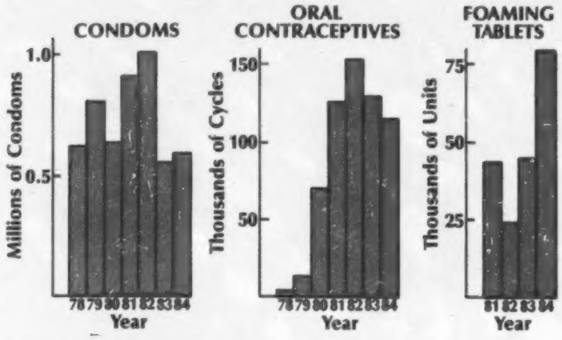
Figure 6. Sales to Distributors by the PROFAMILIA Contraceptive Social Marketing Program, Colombia, 1976–1984



*Data for 1976-78 available only for sales through urban pharmacies.

Source: Plata (150)

Figure 7. Sales by Distributors in the El Salvador Social Marketing Project, 1978–1984



Source: Futures Group (89), Williams (263)

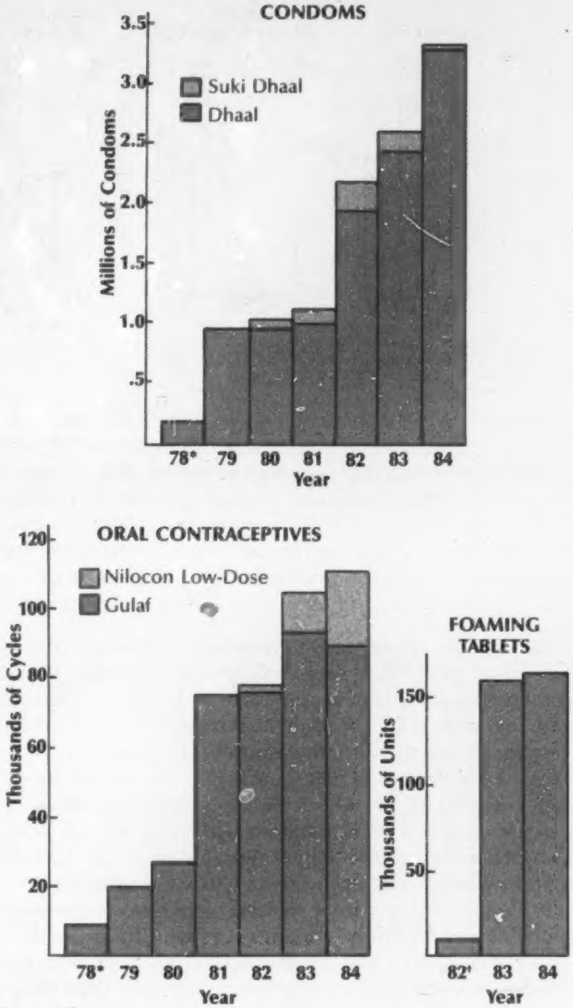
The Bangladesh program is the clearest example of a CSM program that probably has increased overall contraceptive prevalence. Most contraceptives in Bangladesh are supplied by government programs. As the number of CYP provided by the CSM program grew, the number provided by all government programs (excluding IUDs and voluntary sterilization) grew at about the same rate (see Figure 13). This suggests that, on balance, the CSM program was not drawing customers from other government programs but instead was expanding overall contraceptive use (47).

In contrast, in countries with relatively high levels of contraceptive prevalence and widespread government and commercial sources of supply (such as Jamaica, Sri Lanka, and Thailand), CSM products may substitute to some degree for products from other sources. For instance, in Sri Lanka, comparisons of data from a 1973 pre-launch survey and a survey 18 months later suggested that about 35 percent of new *Preethi* condom users had already been using OCs, IUDs, traditional methods, or other condom brands, while 65 percent were new users of contraception (49). Programs that target mainly higher-income groups probably sell products to many users who have switched from other sources and could afford to buy at commercial prices (28). Nevertheless, the lower prices of CSM products compared with commercial products may allow couples to use contraceptives more regularly or to switch to a more effective method. To the extent that sales by a CSM program substitute for contraceptives distributed free by government or private programs, users are helping to cover the overall costs of family planning services. Thus resources are freed to serve more of those who cannot afford to pay for contraceptives or who need medical attention.

Cost-Effectiveness

Once underway, CSM programs have proved to be relatively cost-effective. The Bangladesh program, for instance, had a net operating cost of $1.75 (US) per CYP in 1984 (that is, excluding the cost of commodities but adding in sales revenue; for definitions of various cost measures, see box, p. J-802). By comparison, most other family planning programs in Bangladesh have net operating costs ranging from about $3 to $18 per CYP (2). Even with the inclusion of commodities costs in the Bangladesh program—$6 million in 1984—social marketing costs per CYP are still moderate—a net total cost of $5.97 per CYP (25). (Commodities cost per CYP is especially high for the Bangladesh program because so many customers buy condoms, which cost US AID about $4 per CYP. By com-

Figure 8. Sales by Distributors in the Nepal Contraceptive Retail Sales Program, 1978–1984



*7 months
'2 months

Source: Nepal Contraceptive Retail Sales Company (137)

parison, OCs cost US AID about $1.40 per CYP.) The Nepal program had a net operating cost of $4.67 per CYP in 1984 (93), compared with just under $13 per CYP for OCs or condoms in the rest of the family planning program in 1979-80 (248). Colombia's PROFAMILIA program, which sells most of its products at relatively high prices, made a profit of $2.18 (US) per CYP in 1984, even though it purchases most commodities. The urban sales program made $3.81 per CYP. The component that uses *instructoras* to distribute chiefly to semi-urban and rural shops cost $2.11 per CYP (29). By comparison, in 1980 PROFAMILIA's clinical program cost $15.27 per CYP, and voluntary sterilization cost $2.18 per CYP, assuming that each sterilization provides an average of 12.5 CYP (145).

Costs per CYP vary widely among programs. Some of this variation may occur because different costs are included, such as government office space or the time of government health personnel involved. In general, however, the variation in cost per CYP can be attributed to three factors:

- **Age of the program.** Costs per CYP are high in the early years of a program, then tend to drop as sales increase.
- **Size of the program.** Programs with higher sales volumes tend to have lower cost per unit sold.
- **Prices.** Programs that sell many higher-priced products tend to have lower net costs per CYP.

At the beginning of a CSM program, start-up costs for packaging, promotion, and distribution are high while revenues from sales are low. As sales increase, however, the gap between costs and revenues usually begins to narrow. In Bangladesh, for instance, the net operating cost per CYP for the first year of operation, 1975, was $27.91 (US). By the second year sales had increased sharply, and the net operating cost per CYP fell to $2.86 (56). In Nepal the net total cost per CYP (including commodities cost) for the first year of operation, 1978, was about $49. By 1981 it had dropped to $19, and by 1984, to $8.30 per CYP (137).

The largest programs tend to be the most efficient, even before revenues are taken into account. Two of the largest programs—in Bangladesh and Colombia—have relatively low operating costs per CYP (not including the cost of commodities or revenue from sales). The Bangladesh program, which had an operating budget of about $3 million in 1984 and a sales volume equivalent to about 1.4 million CYP, had an operating cost of $2.25 per CYP (204). In Colombia in 1984 the total cost (operating cost plus most commodities costs) for urban pharmacy and rural/semi-urban shop sales programs combined was about $1.3 million. The total cost per CYP was about $3.22 (29). By comparison, the smaller El Salvador program, with operating costs of about $230,000 in 1983, had an operating cost per CYP of $21.70. Even counting sales revenue, the net operating cost was $14.56 per CYP. This relatively high cost per CYP was partly due to social unrest, which led to a drop in sales (117, 204).

Definitions of Costs for CSM Programs

Four different definitions of costs provide four different ways of looking at the expenditures and efficiency of CSM programs. They are:

1. **Operating cost**, which includes all expenditures except the cost of commodities.
2. **Net operating cost**, which is operating cost minus revenue from sales.
3. **Total cost**, which includes both operating cost and the cost of commodities, even if donated.
4. **Net total cost**, which is the total cost minus revenue from sales.

For the same volume of sales, a program that deliberately sets its prices low will have higher net total cost and net operating cost per CYP than a program that sets prices high.

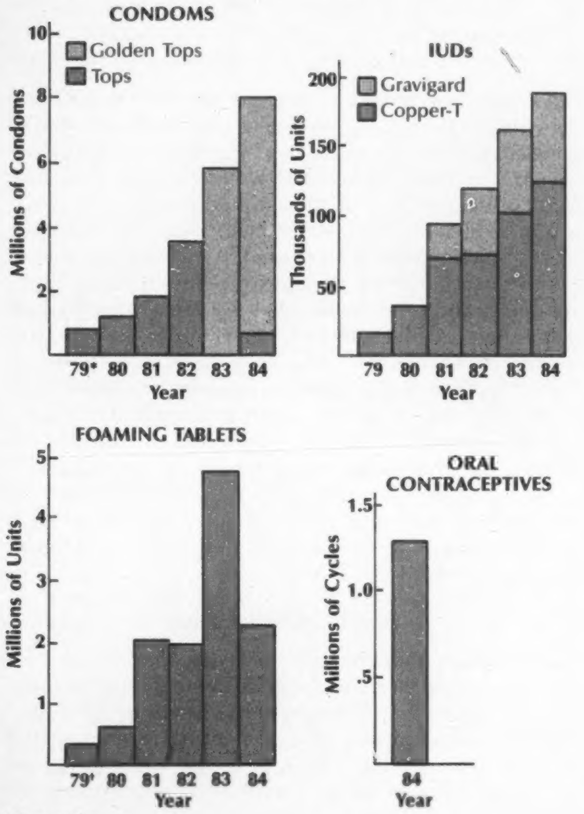
The four cost measures and corresponding cost per CYP can vary markedly. For example, Bangladesh in 1984 sold contraceptives providing about 1,392,000 CYP and yielding about $694,300 in revenue. Costs and costs per CYP were as follows (25):

	Cost	Cost/CYP
Operating cost	$3,130,000	$2.25
Net operating cost	$2,435,000	$1.75
Total cost	$9,005,000	$6.47
Net total cost	$8,310,000	$5.97

When programs shift to emphasizing sales of higher priced products, total revenues usually increase and net costs drop. At the same time, however, unit sales often drop. For example, the Sri Lankan program, because of reduced donor support, began selling many products at commercial prices in the early 1980s. In 1982 the net operating cost per CYP was only $.02; in 1983 the program made a profit of $.20 on each CYP before the cost of commodities was taken into account (204). But total coverage of the Sri Lankan program dropped from about 6.0 percent of MWRA in 1980 to about 4.2 percent of MWRA in 1984—a 30 percent decline (see Figure 11). The Mexican program, also affected by reduced donor support, began to emphasize profit-making items in 1982. Spermicides, IUDs, and various household items are now sold at full commercial prices. Only the prices of condoms, OCs, and injectables are subsidized. While the net operating cost per CYP (possibly including some commodities cost) had fallen to zero by 1984, coverage had dropped about 70 percent, from 1.4 to about 0.4 percent of MWRA (see Figure 12).

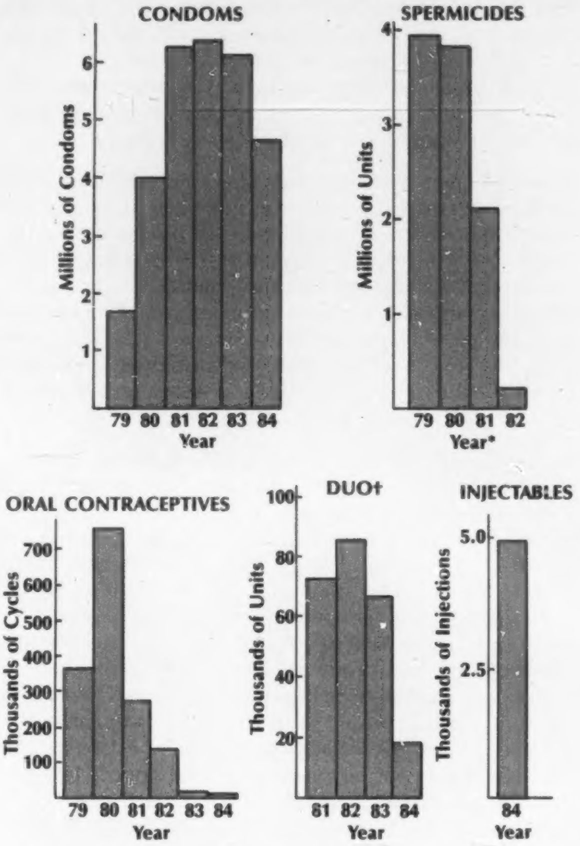
Such experience raises an important question: can CSM programs be both self-supporting and provide affordable contraceptives to low-income couples? Three programs are self-sufficient at least in terms of operating cost. The Sri Lankan and Mexican programs, however, have had to give up their goals of serving many poor couples. In Colombia PROFAMILIA's main CSM component—sales through urban pharmacies—has always been intended to serve mostly middle-income couples willing to pay higher prices. It is designed to raise money to support other services. In general, CSM programs are efficient and can recover a substantial part of costs. The major consideration today is cost-recovery and how much of total costs can be recovered over what period of time.

Figure 9. Sales by Distributors in the Family of the Future Contraceptive Social Marketing Program, Egypt, 1979–1984



*7 months
'6 months
Source: Triton Corporation (252)

Figure 10. Sales by Distributors in the PROFAM Program, Mexico, 1979–1984



†Package of two condoms and two suppositories
*No spermicide sales in 1983 or 1984

Source: Futures Group (89)

Utilizing the Private Sector

CSM programs have usually enlisted the private sector to some degree. All have used established retailers, involving many thousands of people who would not otherwise be involved in family planning work. Most CSM programs have used commercial distributors, market research firms, and communication experts. Involving the private sector has several benefits: (1) It uses the skills, facilities, and infrastructure that already exist in the commercial world. (2) By involving many more people in family planning activities, it helps to build a national consensus in support of family planning.

The Egyptian program especially has benefited from using private-sector skills, possibly because it has had the funds to pay for top commercial expertise. Egyptian companies have carried out market research and sophisticated advertising campaigns. In 1984 Family of the Future began using computers to handle information on management, distribution, and sales (208). The systematic use of modern marketing and business methods has undoubtedly strengthened the program. Other programs, including those in Nepal and Bangladesh, also are now using small computers to help with the difficult task of keeping accurate and up-to-date sales and inventory records.

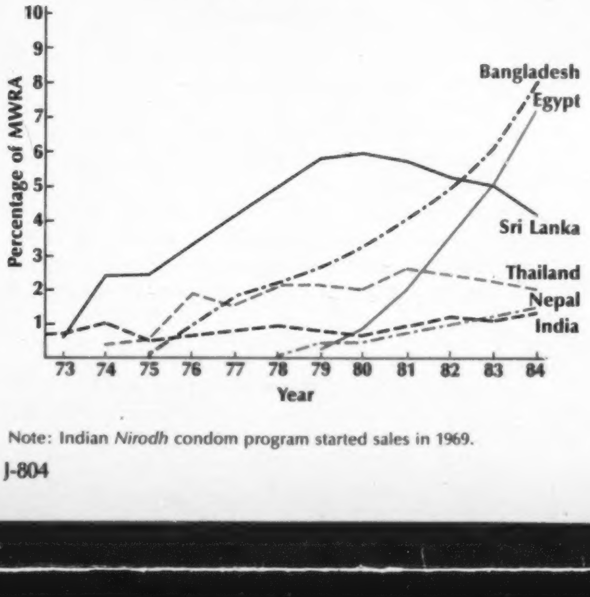
Other programs have not been able to use private-sector skills as extensively. Some have not been able to afford extensive market research, advertising, or commercial salary levels for management positions. Others have found that the needed expertise was not available. In Nepal, for instance, there was no private company capable of packaging CSM products, so a Thai company was used. Some programs have used commercial distributors at first but found that they were not suited for distribution of low-cost contraceptives (see p. J-792).

Just as CSM efforts have made use of indigenous commercial firms wherever possible, they also have strengthened and contributed to the growth of commercial enterprises. When the Nepal program found no suitable market research or advertising firms, it helped to establish them (259). In Colombia salesmen, who left PROFAMILIA, set up in business as independent distributors, and several of these operations have developed into small businesses, distributing other products along with contraceptives (150). Social marketing management in several countries is now organized as private or quasi-private companies. The Nepal Contraceptive Retail Sales Company, established in 1983 when external technical assistance ended, is a private, nonprofit organization. In Bangladesh and Egypt, CSM programs are organized and operate like commercial firms, although they have government representatives on their boards. Organizational structures such as these may facilitate operations when external assistance eventually decreases or ends.

Extending the Availability of Contraceptives

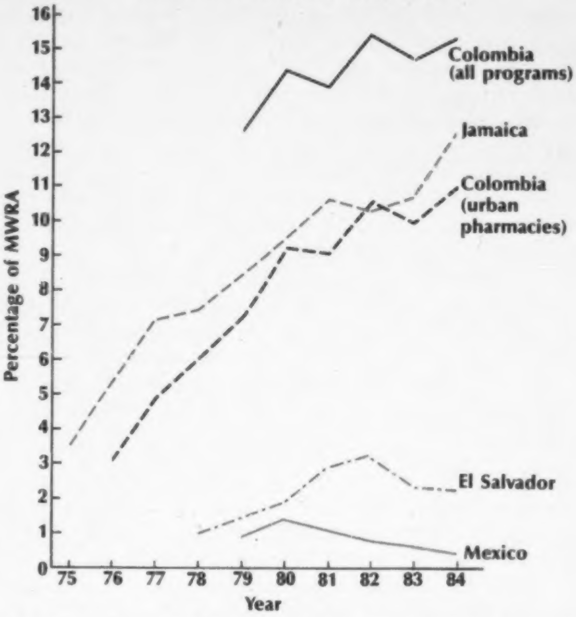
By expanding the number of retail outlets that sell contraceptives, CSM programs have definitely increased the availability of contraceptives. In India the *Nirodh* program sells condoms through an estimated 400,000 retail stores (105). The Nepal Contraceptive Retail Sales program increased the number of outlets selling contraceptives from about 100 to about 10,000 shops by the end of 1984 (134).

Figure 11. Percentage of Married Women of Reproductive Age (MWRA) Served by Contraceptive Social Marketing Programs in Five Asian Countries and Egypt, 1973–1984



Note: Indian *Nirodh* condom program started sales in 1969.

Figure 12. Percentage of Married Women of Reproductive Age (MWRA) Served by Contraceptive Social Marketing Programs in Four Latin American and Caribbean Countries, 1975–1984



Note: Data for all Colombian programs combined not available for years before 1979

But have CSM programs reached poorer couples and those in rural areas, as originally intended? Research in Bangladesh, Egypt, Jamaica, Nepal, and El Salvador generally confirms that customers have low incomes (21, 129, 135, 136, 186). Most programs do not provide wide coverage in rural areas, however. A major reason is that commercial distributors often do not serve rural areas well. Because reaching rural areas is expensive, because shops are small, and because incomes are much lower, goods distributed commercially to rural areas often are limited to the few necessities that sell in large quantities. The Social Marketing Project in Bangladesh has been most successful in reaching rural areas because it developed its own distribution system to address the problem directly. Of course, the importance of reaching rural areas depends upon the degree of urbanization in a country. In Colombia, Jamaica, and Mexico, for example, more than half of the population is urban; in Bangladesh, India, and Nepal, most people live in rural areas.

Start-Up May Be Slow

It was initially thought that CSM programs would start quickly because they could use the existing retail network. The expectation has often proved to be overly optimistic. In many cases program development has been long and arduous. Although distribution networks are ready for use in the commercial sector, registration requirements for pharmaceutical products, approval of prices, and negotiations with local distributors can take months or even years for CSM programs and commercial firms alike. In Honduras, for example, it took two years to register the oral contraceptive (212). In Ecuador the program, along with other companies seeking to market pharmaceutical products, could not obtain approval for prices in spite of two years of effort (35). In a few programs problems in finding and keeping qualified management personnel delayed the start of sales (97, 173).

Other Contributions of CSM

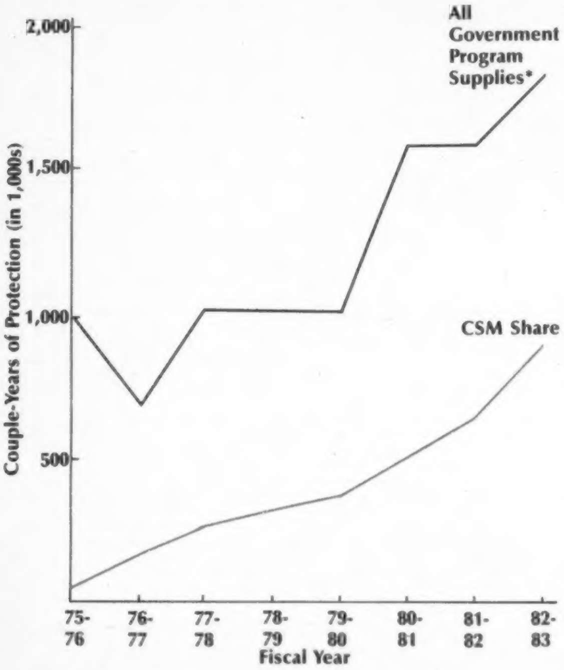
CSM programs have contributed to family planning efforts beyond what can be measured in sales levels, CYP, or coverage estimates. Among the contributions are these:

- Cooperation between CSM program management and government officials has facilitated changes in laws and regulations that make it easier to distribute and to advertise contraceptives.
- Promotional campaigns have brought contraceptives to public attention repeatedly. This exposure may help to legitimate family planning both at the personal level and as a national priority. It also may encourage people to use other family planning programs or to buy commercial contraceptives.
- Family planning associations and government agencies have been introduced to management systems that are both consumer-oriented and cost-conscious and to the use of modern business technology, such as microcomputers.

Which CSM Programs Are Most Successful?

Judged on the basis of various criteria, the most recent sales and cost data suggest that the Bangladesh, Colombian, and Egyptian programs are currently the most successful (see Table 4).

Figure 13. Couple-Years of Protection Against Pregnancy Provided by the Social Marketing Project and by All Government Program Supplies, Bangladesh, 1975–1983



*Excludes IUDs and voluntary sterilization

Source: Davies (47)

In 1984 the Bangladesh program served an estimated 8 percent of MWRA, or about 40 percent of all contraceptors. These figures include many in rural areas. In 1984 net operating cost was $1.75 per CYP. The performance of the program probably can be attributed mainly to two factors: First, there was apparently a substantial unmet need for contraceptives in Bangladesh, which the program has been able to fill. Second, the program has been well-funded, effectively managed, and creatively promoted. When sales of a product have lagged, the program has tried to find out why and then change marketing strategies. For example, an in-house distribution system was developed; inappropriate package designs were changed; and traditional rural health practitioners were enlisted to promote and sell OCs.

The Colombian PROFAMILIA program (including urban sales through pharmacies, semi-urban and rural sales chiefly through small shops, and sales at clinic counters) served an estimated 15 percent of MWRA in 1984—more than any other CSM program. This amounted to over 30 percent of all contraceptors. At the same time, the program made money to support other services—$2.18 (US) per CYP. The urban pharmacy sales component, which accounts for about two-thirds of all sales, made a profit of $3.81 per CYP in 1984 (29). Dedicated management and a close working relationship with manufacturers and government agencies have been crucial to the achievements of the program.

Because the urban pharmacy program appeals largely to the middle class, however, the Colombian program cannot be directly compared with CSM programs that set prices so as to serve the poor. In addition, PROFAMILIA is the only licensed importer of condoms in Colombia. In 1985 PROFAMILIA had difficulty obtaining some supplies inexpensively. It has also faced strong competition from smuggled condoms, and sales have dropped.

The Egyptian program has grown very rapidly. It began sales in 1979. In 1984 it provided contraceptives to an estimated 7 percent of MWRA and served 30 percent of contraceptors. In 1984 its net operating cost was about $5.26 per CYP. The success of the program may be attributable largely to generous funding, a largely urban market, sound management, and extensive advertising, especially on television, which reaches the majority of potential CSM customers in urban areas. A substantial operating budget—over $3.6 million in 1984-85—makes extensive advertising possible. Also, the program has relied on thorough market research to develop distribution and other marketing strategies.

Other programs may be judged successful by one or two criteria, but not by others. The Jamaican program reaches a high percentage of the population—an estimated 13 percent of MWRA and 23 percent of contraceptors in 1984. Because the program operates in a small country, however, the total protection provided is relatively small—just over 44,000 CYP in 1984. The Sri Lankan and Mexican programs are highly cost-effective, but, as noted, at the sacrifice of coverage. The Nepal program, working under very difficult conditions, served a substantial percentage of contraceptors in 1984—21 percent—for a reasonable cost per CYP—$4.67. Nevertheless, the program reached only an estimated 1.5 percent of MWRA. (See Table 4.)

A recent cross-national study used data from 10 ongoing CSM programs to gauge performance and identify factors contributing to success. It examined the same 10 programs shown on Table 4 except that Ghana replaced Thailand. The study concluded that the Sri Lankan, Colombian, Bangladesh, and Jamaican programs had relatively high sales rates (average monthly sales per 1,000 women of reproductive age) and were more likely than other programs to have better-than-expected annual sales volumes given socioeconomic and cultural conditions, overall national family planning policy, and length of program operations (36). The data used in the study do not reflect the current performance of CSM programs, however. Because the most recent data were not available at the time of analysis, no more than the first six years of sales were evaluated for any program. Furthermore, only condom and OC sales were considered. Thus, for Egypt, IUD sales and OC sales (which began in 1984) were not included. The recent difficulties of the Sri Lankan program also were not considered.

The study found that quite different factors affected sales of condoms and OCs. Higher sales rates for condoms were most closely linked to programmatic factors, specifically higher advertising expenditures per 1,000 women of reproductive age. In contrast, higher sales rates for OCs were most closely linked to better general socioeconomic conditions in the country, as indicated by such measures as higher income and education levels and more newspapers and radios per 1,000 population. Higher sales rates of OCs also were linked to greater overall government commitment to family planning and to the absence of a prescription requirement. Thus the major factors affecting condom sales were within the control of the CSM program, but the major factors affecting OC sales were not (36).

After more than a decade of experience, it is now clear that some of the original expectations for CSM were more realistic than others. A number of programs have been able to achieve the primary goals of CSM—providing contraceptives to many low-income couples at a reasonable cost. CSM programs have not, however, been able to avoid all obstacles. Lack of experience with aggressive marketing of contraceptives, the difficulty of reaching rural areas, time-consuming bureaucratic procedures, and shifting policies and politics of host governments have impeded CSM programs just as they have impeded other family planning programs.

Any hopes that CSM could be an easy, quick, or cheap substitute for other programs, or could flourish without government acceptance, have given way to a more realistic view. In this view CSM delivers family planning supplies in a way that complements clinics, community-based services, and commercial sales. Together these various approaches can help meet the public health goal of reaching the entire population at risk. In the right setting, with political and financial support and the flexibility to deal with change, CSM programs can serve many potential customers. At the same time CSM programs can recover part of the costs from users who are willing and able to pay. In sum, a contraceptive social marketing program can be one important part of a broad national effort to improve family and reproductive health.

Table 1. Contraceptive Social Marketing Programs with Ongoing Sales, Current Status and Major Features

Place, Start and Product Launch Dates	Ref. No.	Management/Technical Assistance	Current Funding Source	Potential Customers	Products/ Brands	Price (in $US)	Distribution	Retail Outlets	Promotion*
ASIA									
BANGLADESH 1974 start 1975 *Raja, Maya* 1979 *Joy* 1980 *Ovacon* 1983 *Panther,* Safe Delivery Kit 1985 *Majestic*	47, 56, 182, 202, 203, 205	Bangladesh Social Marketing Project (semi-autonomous organization)/ PSI	US AID	All at risk	Condoms *Raja* *Panther* *Majestic* OCs *Maya* *Ovacon* Tablets *Joy* Safe Delivery Kit	As of 1985: .008/1 .08/4 .05/3 .06/cycle .16/cycle .10/10 .18/20 .96	Program staff to wholesalers & retailers	Pharmacies, various shops & vendors, rural medical practitioners	Radio, mobile film units, POP displays, calendars, billboards, print, TV. Painted boat sails, decorated vans and trucks. Detailing/group training of doctors & rural medical practitioners.
INDIA 1967 start 1969 *Nirodh* 1984 *Nirodh Deluxe*	6, 13, 105, 213	Indian Govt. Dept. of Family Welfare/ none	Government of India	1978: 40 million younger couples	Condoms *Nirodh* *Nirodh Deluxe*	As of 1985: .03/3 .08/5	Commercial distributor	Various shops	Press, radio, TV, cinema, outdoor exhibitions.
NEPAL 1976 start 1978 *Dhaal, Gulaf* 1981 *Suki Dhaal*[a] 1983 *Kamal, Nilocon,* 1984 *Jeevan Jal*	56, 216, 220, 256	Nepal Contraceptive Retail Sales Company, (Pvt.) Ltd. (independent non-profit organization)/(Westinghouse Health Systems until 1983)	US AID	All at risk (mostly poor, rural)	Condoms *Dhaal* OC *Gulaf* *Nilocon* Tablets *Kamal* ORS *Jeevan Jal*	As of 1985: .01/1 .12/cycle .32/cycle .19/9 .07/packet	Program staff to wholesalers & retailers	Various shops, tea stalls, medical shops	Radio, newspapers, films, posters, calendars, parade float, billboards, painted rickshaws & jeeps, loudspeakers, POP display contests, samples.

Table 1. (Continued)

Place, Start and Product Launch Dates	Ref. No.	Management/Technical Assistance	Current Funding Source	Potential Customers	Products/Brands	Price (in $US)	Distribution	Retail Outlets	Promotion*
SRI LANKA 1973 start 1973 *Preethi*[a] 1976 *Mithuri Red Label* 1979 *Tahiti, Noriday, Mithuri Blue Label* 1981 *Moonbeam, Rough Rider, Stimula* 1982 *Mithuri Green Label, Panther, Neo Sampoon* 1984 *Preethi Gold*	8, 28, 29, 56, 227, 228, 263	Sri Lanka FPA/(PSI until 1975)	IPPF	NA	Condoms *Preethi Gold* *Moonbeam* *Panther* *Rough Rider* *Stimula* OCs *Mithuri* *Red* *Blue* *Green* Tablets *Neo Sampoon*	As of 1985: .13/3 .19/4 .03/2 .67/3[b] .67/3[b] .13/cycle .09/cycle .13/cycle .08/3	Program staff, commercial distributor	OC (by prescription): pharmacies. Condoms & tablets: various shops.	POP displays, newspaper ads, village retailer meetings.
THAILAND 1977 start	13, 17, 28, 251	Population & Community Development Associates (nonprofit organization with for-profit component)/none	Government of Thailand, US AID, Population and Development Corporation	Fertile couples	Condoms *Mechai* *Rainbow* *Supreme* *Superthin* OCs *Eugynon* *Norinyl* *Ovostat*	As of 1985: .04/1 .03/1 .07/1 .33/cycle .19/cycle .26/cycle	Staff in urban areas, community-based distributors in rural areas	In cities: parmacies; in rural areas: house-to-house sales	Promotional activities by community-based workers.
LATIN AMERICA & CARIBBEAN									
CARIBBEAN (Barbados, St. Vincent, St. Lucia) 1983 start 1984 *Panther, Perle, Perle LD*	26, 223	Frank B. Armstrong (commercial distributor)/Futures SOMARC	US AID	Low-income men and women at risk	Condoms *Panther* OCs *Perle & Perle LD*	As of 1984: .75/3 (Barbados) .42/3 (St. Vincent & St. Lucia) 1.75/cycle (Barbados) 1.26/cycle (St. Vincent & St. Lucia)	Frank B. Armstrong (regional commercial distributor)	OC (by prescription): pharmacies, physicians. Condoms: pharmacies, supermarkets, small shops.	POP displays, press, radio, TV; retailer training seminars, detailing; generic ads in mass media.
COLOMBIA 1973 start 1973 condom, OC 1976 foam, tablet 1977 suppository	18, 28, 150, 173	PROFAMILIA (FPA)/none	IPPF (some commodities)	At-risk couples with access to retail outlets	Condoms *Tahiti* *Sultan* OCs (8 brands) (2 brands) Foam *Emko* Tablets *Neo Sampoon* Suppositories *Norforms*	As of 1985[c]: .14/1 .12/1 .39/cycle .46/cycle NA .12/1 2.70/20 .70/12	Commercial distributors to pharmacies in urban areas. Program staff (*instructoras*) to small shops in rural and poor semi-urban areas.	Pharmacies, small shops, depots	Newspapers, magazines. Promotion to small shops in semi-urban & rural areas by *instructoras*.
EL SALVADOR 1976 start 1978 *Condor, Sweetheart* 1979 *Perla, Blue Lady* 1981 *Suave* 1983 *Panther* 1985 *Prime, Tahiti*	28, 82, 88, 117, 210, 226	Asociación Demográfica Salvadoreña (ADS) (FPA)/(Development Associates until 1980)	US AID (mainly commodities)	Low-income at-risk men & women	Condoms *Condor* *Panther* OCs *Perla* Tablets *Suave* Condoms *Sweetheart* *Prime* *Tahiti* OCs *Blue Lady*	As of 1985: .19/3 .91/3 .51/cycle .19/3 .32/1 1.14/3 .05/3 .05/cycle	Program staff to wholesalers and retailers	Pharmacies. Condoms & OCs: also vending machines.	Radio, TV

Table 1. (Continued)

Place, Start and Product Launch Dates	Ref. No.	Management/Technical Assistance	Current Funding Source	Potential Customers	Products/Brands	Price (in $US)	Distribution	Retail Outlets	Promotion*
GUATEMALA 1983 start 1985 *Scudo, Perla, Lirio*	80, 142, 200, 211, 272	Importadora de Productos Farmaceuticos S.A. (independent for-profit organization)/Juarez & Associates	US AID	NA	Condoms *Scudo* OCs *Perla* Tablets *Lirio*	As of 1985: .52/3 .61/cycle .35/4	Commercial distributor	OCs (by prescription): pharmacies. Condoms & tablets: pharmacies first, then small stores, supermarkets, gas stations.	Radio, TV starting summer 1985.
HONDURAS 1981 start 1984 *Guardian, Perla*	87, 191, 212	Asociación Hondureña de Planificación de la Familia (ASHONPLAFA) (FPA)/Triton Corp.	US AID	Low-income urban and rural consumers	Condoms *Guardian* OCs *Perla* Tablets *Sana* (planned)	As of 1984: .75/3 .75/cycle NA	Commercial distributor	Pharmacies, small shops	Print, radio, TV, POP displays, posters
JAMAICA 1974 start 1975 *Panther, Perle*	28, 215	National Family Planning Board, Ministry of Health/ (Westinghouse Health Systems until 1977)	US AID (mainly commodities)	Low-income men and women at risk	Condoms *Panther* OCs *Perle*	As of 1984: .03/1 .16/cycle	Commercial distributor	Pharmacies, small shops	Radio, TV, POP displays
MEXICO 1977 start 1979 *Profam* brands[e] 1980 *Supermacho, Alazan, Selecto* 1981 *Profam Duo*[d] 1984 *Patector, Cu-T* 1985 *Plafam*	28, 51, 88, 221, 222	Promotora de Planificación Familiaı, A.C. (PROFAM) (independent non-profit organization)/(PSI until 1981)	None	NA	Condoms *Plafam* *Supermacho* *Alazan* *Selecto* OCs *Profam* Injectables *Patector* IUD *Cu-T*	As of 1985: .33/1 .22/1 .22/1 .43/1 .37/cycle 1.40 4.35	Program staff to wholesalers & retailers	Pharmacies	POP displays, radio, newspapers, TV
MIDDLE EAST									
EGYPT 1978 start 1979 *Cu-T, Tops, Amaan* 1981 *Gravigard* 1983 *Golden Tops, Norminest Fe*	162, 191, 209, 220	Family of the Future (semi-autonomous organization)/Triton Corp.	US AID	Married women with one or more children, men	Condoms *Golden Tops* IUD *Copper-T* *Gravigard* Tablets *Amaan* OCs *Norminest Fe*	As of 1985: .04/1 1.20 3.31 .23/12 .42/cycle	Program staff	OCs (by prescription): pharmacies. IUDs, condoms, tablets: pharmacies, hospitals, doctors.	Radio, TV, newspapers, magazines, billboards, bus signs, cinema, rallies, POP displays, bonuses to retailers, free samples to physicians, pamphlets, exhibits at physician/retailer meetings.

FP = family planning
FPA = family planning association
IPPF = International Planned Parenthood Federation
NA = not available
OCs = oral contraceptives

ORS = oral rehydration salts
POP = point of purchase
PSI = Population Services International
SOMARC = Social Marketing for Change
US AID = United States Agency for International Development

*Listed in order of importance

[a] Sales discontinued in 1984
[b] Sold at full commercial price
[c] Prices in semi-urban and rural shop component of program. Prices in urban pharmacy component are about three times higher for condoms and two times higher for OCs.
[d] *Profam Duo*—two condoms and two suppositories, packaged together
[e] Sales of most *Profam* brands discontinued in 1985

Table 2. Contraceptive Social Marketing Programs in Early Stages, Current Status and Major Features*

Place, Start and Product Launch Dates	Ref. No.	Management/ Technical Assistance	Current Funding Source	Potential Customers	Products/ Brands	Distributors	Retail Outlets	Promotion
COSTA RICA 1983 start	173, 204	Asdecosta (for-profit organization owned by Asociación Demográfica Costarricense)/ Samuel & Ott	US AID	Low-income couples at-risk	Condoms OCs (brand names undecided)	Commercial distributor	Pharmacies	Radio planned
INDIA 1984 start	41, 70, 213	Contraceptive Marketing Organization (nonprofit semi-autonomous organization)/ undecided	US AID	Literate at-risk couples with access to pharmacies	OCs	NA	NA	Intensive promotion planned
NIGERIA 1985 start (11 states)	42	Sterling Products (Nigeria, Ltd.)/Family Planning International Assistance	US AID	Pharmacy customers	Condoms *Panther* OCs *Noriday*	Sterling Products Company (commercial distributor)	Pharmacies already served by Sterling Products	Generic radio, TV, print ads planned
PAKISTAN 1984 start	28, 189, 201, 219	Government Ministries of Planning, Health, and Education/undecided	US AID	NA	Condoms OCs (brand names undecided) IUD *Cu-T*	Program staff, commercial distributor	NA	Planned use of press, cinema, POP displays, sound trucks, outdoor ads
PERU 1984 start 1985 planned product launch	215	Apoyo a Programas de Población (private nonprofit organization)/ Juarez & Associates	US AID	NA	Condoms OCs Tablets (brand names undecided)	NA	NA	NA

NA = not available
OCs = oral contraceptives
POP = point of purchase
US AID = United States Agency for International Development

*Programs shown on this table have agreements for donor support but have not yet begun sales.

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